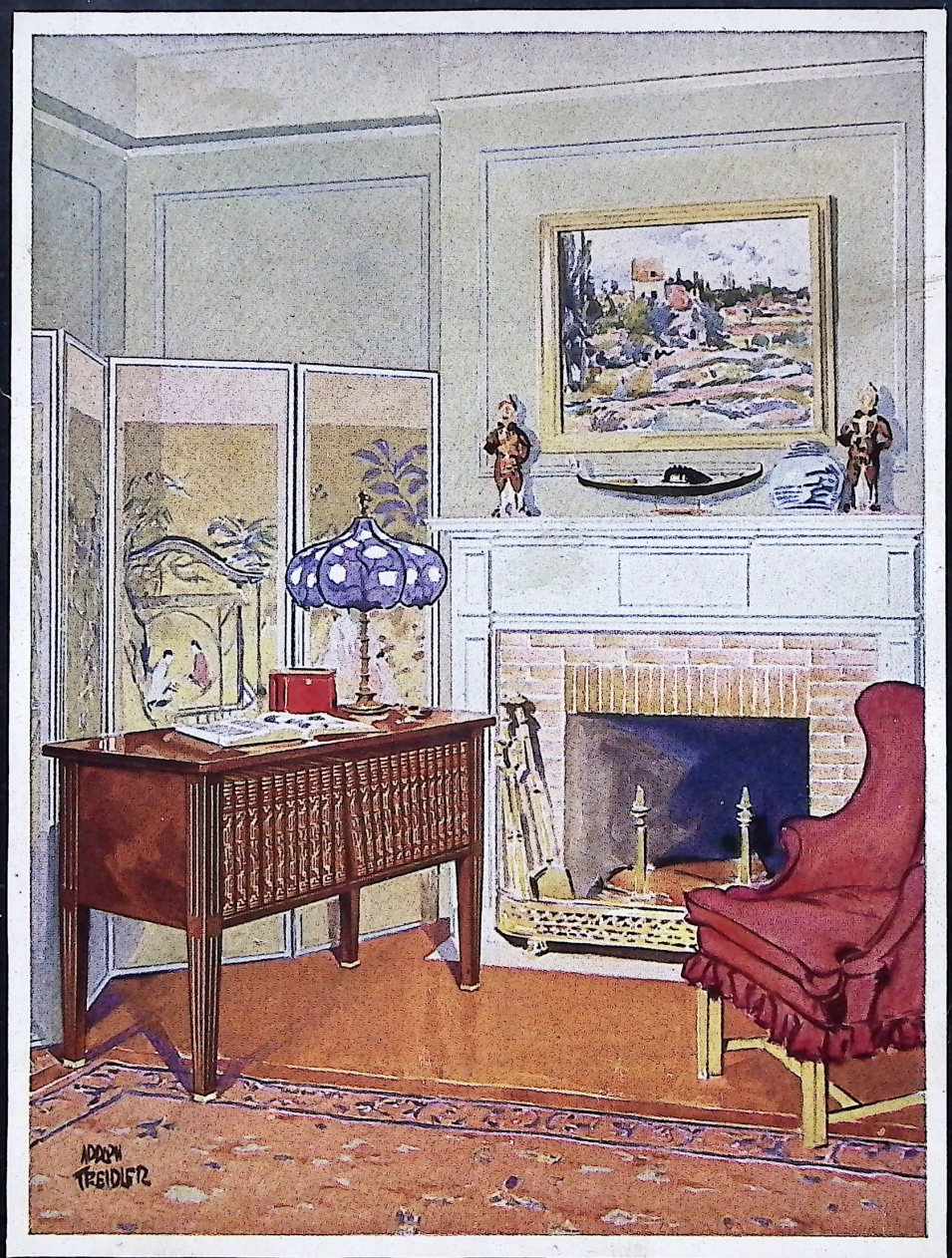
EB

NEW

14th

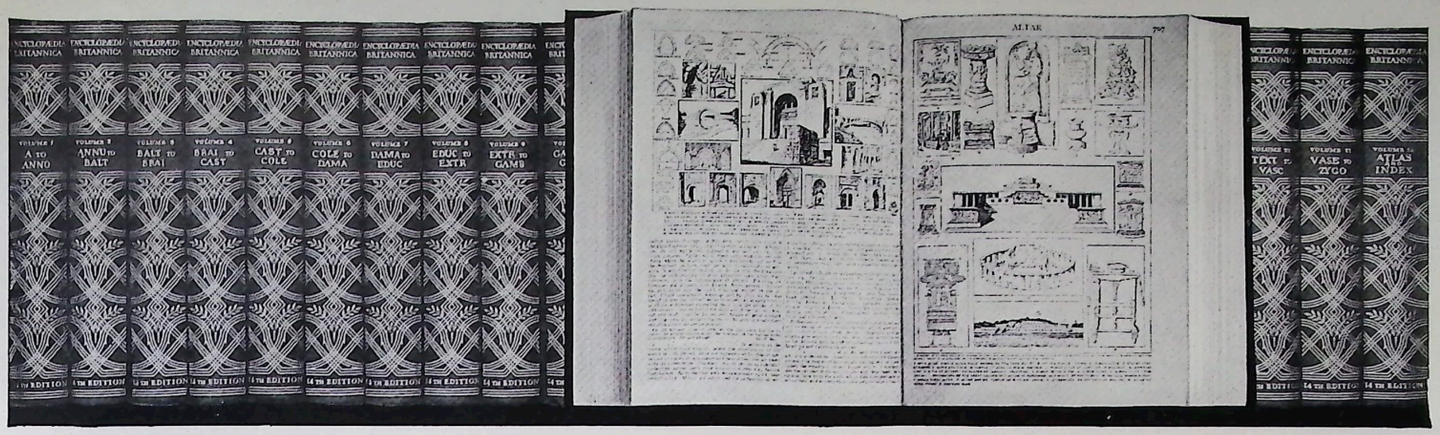
EDITION



ENCYCLOPÆDIA BRITANNICA

Setting by B. Altman & Co., New York

GREAT care and attention have been given to the bindings of the new Britannica. In beauty of design and in durability, they surpass anything the Britannica has previously offered. Four handsome bindings are available. They range from rich blue cloth to sumptuous brown full morocco. Each is stamped in genuine gold leaf. To accommodate the new Britannica, a bookcase table has been specially designed. It is made of genuine mahogany. *This table and the blue cloth binding are shown in the picture above.*



THE KNOWLEDGE OF THE WORLD

SO THAT YOU CAN USE IT

THE PUBLICATION of the Fourteenth Edition of the Encyclopaedia Britannica is an event of incalculable benefit to the American people. For here at last, brought together within the bindings of one superb set of volumes, is the creative knowledge of all the world down to the present moment—so written that all can understand it.

It is simply written and easy to read and use

Of even greater importance, the Britannica employs new methods of fact-presentation which enable its readers to identify, instantly, the particular information that will help them most, giving them an opportunity to *use* this working knowledge to their own every-day advantage, no matter what may be their individual inclinations, problems or ambitions.

The time was ripe for this complete revision of the Britannica. For the progress of the world, in every field of human accomplishment, during recent years, has been marked by swift and increasing change.

Recent world changes demand a new kind of Encyclopaedia

Not only has this change brought a tremendous measure and variety of fresh theory, fact and truth into being, but it has made the possession and utilization of this new knowledge essential to the comfort and success of all who are to deal efficiently with present-day conditions of life and living.

It was the purpose, and is the privilege of the *new* Britannica to supply this new knowledge, added to all that was known before, so that all may understand it, and all can use it.

Only Encyclopaedia completely written by great authorities

In order that this might be accomplished, more than 3,500 of the greatest living authorities—celebrated men and women from every corner of the earth—eminent writers and specialists—inventors and discoverers—artists, scientists and engineers—historians, philosophers and scholars and prominent business executives have written for the new Britannica thousands of articles presenting knowledge never before published in any encyclopaedia.

One of the chief distinctions of the *new* Britannica is, consequently, a wider representation of international learning than any other encyclopaedia has ever attempted to organize. No other work of reference approaches it in comprehensiveness.

This is the first "humanized" encyclopaedia. In all cases where it has been possible to do so, simple and intelligible words and explanations have been substituted for the dry, highly technical terms and expressions that have been used so frequently by scientists and specialists. This makes the invaluable information that can be found only in the *new* Britannica readable and understandable to those who have not had a technical training. It enormously increases its helpfulness to all in any home.

Illustrated as no other Encyclopaedia has been illustrated

The *new* Britannica employs a new method of continuous illustration. More than 15,000 perfect drawings, etchings and plates (many in full color) explain the text subjects — vividly, clearly, helpfully. While adding largely to the information-value of the articles, the variety and beauty of these illustrations cause children to use the Britannica, eagerly and continuously.

Needed in every home where there are children

In this way the Britannica induces children to acquire the important habit of seeking only *authoritative* information, a habit which extends, to their very great profit, throughout their lives. The impressive cost of producing this "finest of all encyclopaedias" is not even faintly indicated in the low price at which it is available to you. Actually, before a single volume of the *new* Britannica was received from the press, nearly two and one half million dollars had been expended.

No one can outgrow the Britannica. It is a permanent investment

No single individual could afford to spend a sum like that for knowledge. Yet the twenty-four volumes of the Britannica make *all* knowledge available to their owners—and for a price so small that all can possess and use that knowledge, year after year. For no one can use up or outgrow the Encyclopaedia Britannica.

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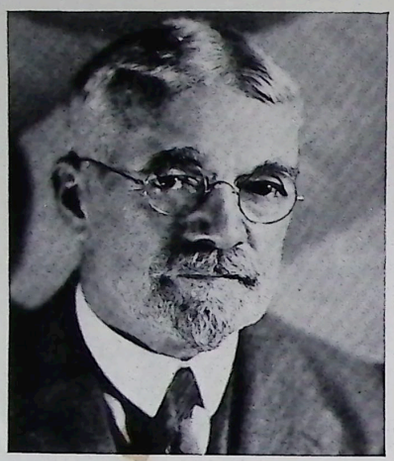
A "NEW MODEL" ENCYCLOPÆDIA

Distinguished Editorial Board Guides Its Making



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JAMES L. GARVIN
Editor-In-Chief

KAIDEN-KEYSTONE STUDIOS

WARREN E. COX
Art Director

THE *new* Britannica is a "new model" encyclopaedia, built on a new plan. Three years of intensive editorial work were required to produce it. It involved the labors of more than fifty editors and associates working in close cooperation with more than 3,500 contributors from fifty countries.

"The result," quoting President Angell of Yale, "is a work of consuming interest, and one which establishes a standard that will long remain unchallenged."

JAMES L. GARVIN

To plan and supervise the editorial work of this *new* Edition required a breadth of understanding, a knowledge of modern progress, and an ability of direction exceedingly rare. Such an unusual combination of qualities was found in the men selected as chief editors.

Mr. Garvin is one of the outstanding figures in the field of modern journalism. His utterances have attracted world-wide attention.

There is probably no editor so many-sided in his interests as Mr. Garvin. He is a thorough student of history, economics and politics, and has an extensive knowledge of current affairs.

To the editing of the *new* Britannica, he brought a broad knowledge of political, economic and social phases of American life and a wide acquaintance with Americans.

Speaking of Mr. Garvin's selection for the task, the New York Times said: "There can be no question of his competence for the work he is now to undertake, whether on the score of intellectual ability, knowledge of who the experts are whom he must call upon, or executive aptitudes. Those who know him best are most sure that he will both command success and deserve it."

Mr. Garvin aimed at making the *new* Edition a work of intellectual cooperation between distinguished scholars and experts of all kinds in many countries. Under his editorship, the *new* Britannica has achieved a wider representation of international learning than any other encyclopaedia has attempted to organize.

F. H. HOOPER

Mr. Hooper is an American. He has been literary adviser to various publishers in this country and an editor of the Century Dictionary. For the past thirty years he has been associated with the Britannica, and this association has brought him into close relationship with the men and women most prominent in thought and action in the United States.

As American editor, exclusively responsible for American contributions, Mr. Hooper has played an important part in strengthening the Britannica's unchallenged place as the greatest reference work in the world. Steeped in the tradition of the Britannica—of going forward step by step, with the progress of the age—he has given enthusiastically of his thought and energy to make the new edition meet present and future needs more completely than any similar work in existence.

"Librarians may feel assured that this is an entirely new edition, rewritten from beginning to end."—L. T. LITTLE, *—Chairman, Subscription Books Committee, Massachusetts Library Club.*

WARREN E. COX

As Art Director of the *new* 14th Edition of the Encyclopaedia Britannica, Warren E. Cox, who is an American, has won high praise from the most discriminating critics on both sides of the Atlantic. Painter, poet, writer and antiquarian, Mr. Cox first studied to become a civil engineer.

After having been seriously wounded in action in France he returned to America and instituted in New York what has become one of the best known studios of decorative art of the present day.

Mr. Cox is a contributor to several of the more serious periodicals, has accumulated a well-known collection of early Chinese potteries, and has exhibited paintings in the National Academy of New York, the Pennsylvania Academy of Fine Arts and the Buffalo Fine Arts Academy.

"REVISED AND REWRITTEN" —A DEFINITION

The new Fourteenth Edition is essentially a new encyclopaedia. Revised, rewritten, reillustrated and reset.

Contributors have made use of material in the previous edition only where that material could not in any way be improved. But all such material has undergone the same rigid checking that has been applied to the entire work.

In the preparation of this new edition the whole field of knowledge has been resurveyed. The result is a new book—new in scope and practical usefulness.

BY COURTESY OF (1) THE METROPOLITAN MUSEUM OF ART (2) PHOTOGRAPHISCHES ATELIER. DER KUNSTHISTORISCHEN SAMMLUNGEN, VIENNA

MASTERPIECES of FAMOUS CRAFTSMEN

AN ACQUAINTANCE with silver and goldsmiths' work, pottery, textiles, etc., is helpful in furnishing a home.

Great craftsmen explain these subjects in the *new* Britannica and color reproductions of masterpieces illustrate their articles.

(*Above:* The Rospigliosi Cup by Benvenuto Cellini. *Below:* Golden Salt Cellar, wrought by Cellini for Francis I. of France.)

PLATES WITH GOLD

The gorgeousness of old, illuminated manuscripts, their heavy gold, deep blues and scarlets, have been the envy of printers since Caxton.

Not until recent times was it possible to reproduce on the printed page such a wealth of color as appears in the color plates in the new Britannica.

The quality of the technique may be judged by this facsimile of an illuminated page from the Gutenberg Bible, where the gold embellishments are preserved as faithfully as the tints.

There are many plates in full color with gold in the *new* Britannica. Not only is the use of gold unusual, owing to cost, but the plates have been printed by a new method hitherto thought impossible.

AFTER A FACSIMILE BY SCHWENKE OF THE PELPLIN COPY OF THE GUTENBERG BIBLE, BY COURTESY OF THE NEW YORK PUBLIC LIBRARY

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J. H. ROBINSON

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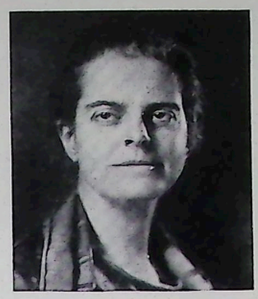

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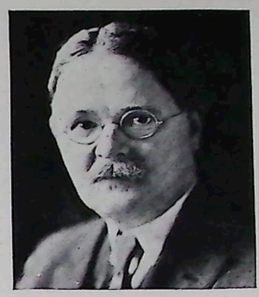

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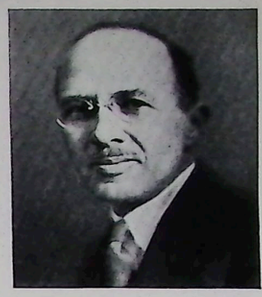

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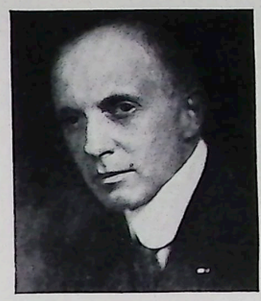

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AN Editorial Board of more than fifty distinguished men and women was organized to assist the Editors-in-Chief, Mr. J. L. Garvin and Mr. F. H. Hooper, in planning and supervising the editorial work of the New Edition.

The ablest authorities in England and America have guided the making of the *new* Britannica. Their names are listed on this page.

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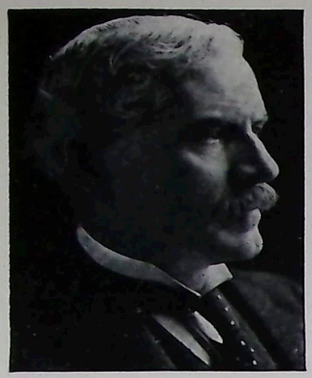

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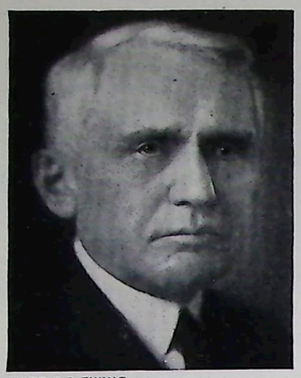
English Prime Minister, writes on Labor Party



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Former Secretary of State, writes on Outlawry of War

UNDERWOOD

JULIUS ROSENWALD
Merchant and Philanthropist writes on Philanthropy

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MAX REINHARDT
Renowned stage director, writes on the Actor

KEYSTONE VIEW

MILTON C. WORK
Authority on Auction Bridge, writes on Auction Bridge

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President of Mt. Holyoke, writes on Women's Colleges

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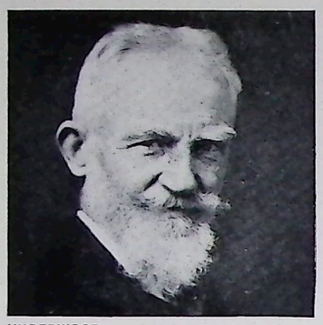


UNDERWOOD

GEORGE BERNARD SHAW
Nobel Prize: Literature, 1925
Subject: Socialism

F. A. SWAINE

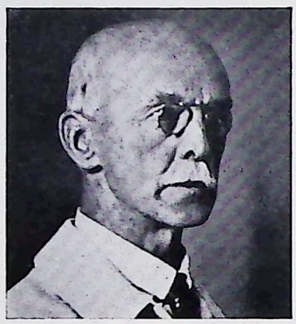
FRANCIS W. ASTON
Nobel Prize: Chemistry, 1922
Subject: Isotopes, Positive Rays

HENRI MARTINIE

JEAN PERRIN
Nobel Prize: Physics, 1926
Subject: Brownian Movement

KEYSTONE VIEW

ALBERT EINSTEIN
Nobel Prize: Physics, 1921
Subject: Space-Time

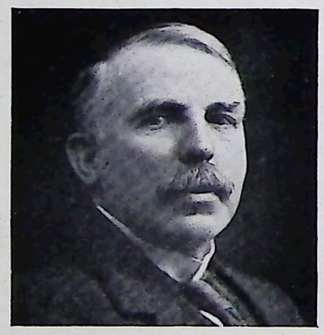


WIDE WORLD

ARTHUR HARDEN
Nobel Prize: Chemistry, 1929
Subject: Vitamins

UNDERWOOD

A. A. MICHELSON
Nobel Prize: Physics, 1907
Subject: Interferometer



RUSSELL

SIR ERNEST RUTHERFORD
Nobel Prize: Chemistry, 1908
Subject: Radioactivity

HARRIS & EWING

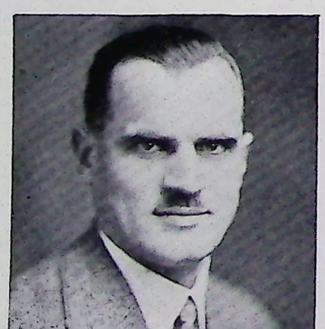
ELIHU ROOT
Nobel Prize: Peace, 1912
Subject: World Court

RUSSELL

A. V. HILL
Nobel Prize: Medicine, 1922
Subject: Muscle

RUSSELL

SIR J. J. THOMSON
Nobel Prize: Physics, 1906
Subject: Conduction of Electricity



EB

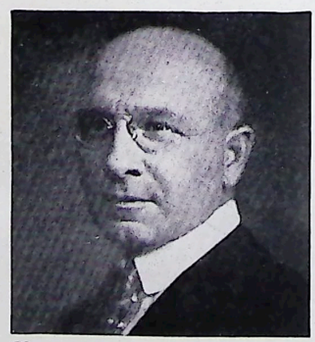
ARTHUR H. COMPTON
Nobel Prize: Physics, 1927
Subject: Compton Effect

ELFELT

NIELS BOHR
Nobel Prize: Physics, 1922
Subject: Atom

EB

ROBERT A. MILLIKAN
Nobel Prize: Physics, 1923
Subject: Electron



EB

ALEXIS CARREL
Nobel Prize: Medicine, 1912
Subject: Tissue Culture

BY COURTESY OF THE MUSEUM OF FINE ARTS, BOSTON, AND DR. A. K. COOMARASWAMY

MARVELOUS CLOTHS of GOLD

ILLUSTRATIONS of fabrics are a feature of the *new* Britannica. Above are shown six specimens of Indian and Indonesian textiles.

At top: Two fragments of turbans of embroidered muslin.

Centre: (Left) A garment piece of cotton batik with superposed design of stamped gold leaf. (Right) Fragment of painted muslin.

Below: (Left) Ikat (chiné) silk sarong with gold brocade border. (Right) Typical gold brocade.

COLOR PLATE FROM THE NEW BRITANNICA

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A superb 15th Century stained glass panel from the east window of All Saints, a beautiful mediaeval church standing in York, England. During the middle ages this historic town was the seat of England's most productive school of glass painting.

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A. PESCE
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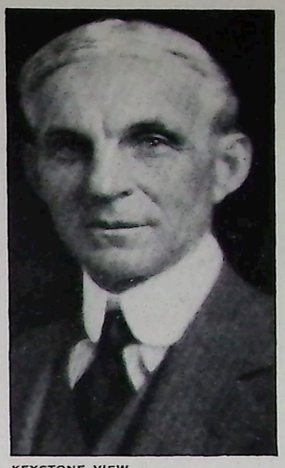

KEYSTONE VIEW
HENRY FORD

FRANK B. KELLOGG *writes on Outlawry of War*

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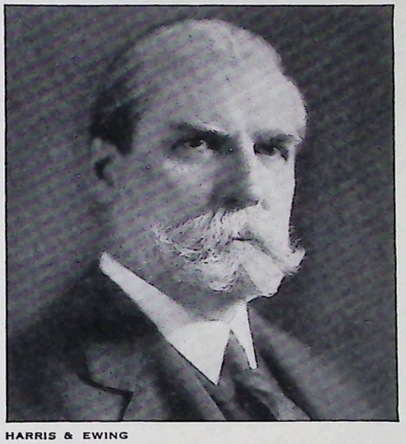
WILLIAM BEEBE *writes on the Galápagos Islands*

Mr. Beebe has participated in various expeditions, notably the Arcturus Adventure (1925).

HENRY FORD *writes on Mass Production*

The Ford factories are almost the symbol of Mass Production.



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Mr. Andrews has conducted a series of Asiatic Expeditions.

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Mr. Russell is well-known as a mathematician and philosopher. Among his recent published works are *The ABC of Relativity, The Analysis of Matter,* etc.

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Professor Shapley, director of the Harvard College Observatory, is one of the leading American astronomers.

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Professor Breasted, an eminent orientalist and historian, is in full charge of the Oriental Institute of the University of Chicago.

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ELMER A. SPERRY *writes on the Gyroscope*

Mr. Sperry invented the gyro-compass, aeroplane and ship stabilizers and numerous special devices. He held over 400 patents issued in the United States and Europe. Mr. Sperry died in 1930.

CHARLES EVANS HUGHES *writes on the Monroe Doctrine*

As statesman and jurist, Chief Justice Hughes has an international reputation.

ANDREW W. MELLON, *writes on U.S. Finance*

As Secretary of the Treasury in three administrations, Mr. Mellon has an extensive knowledge of our national finance.

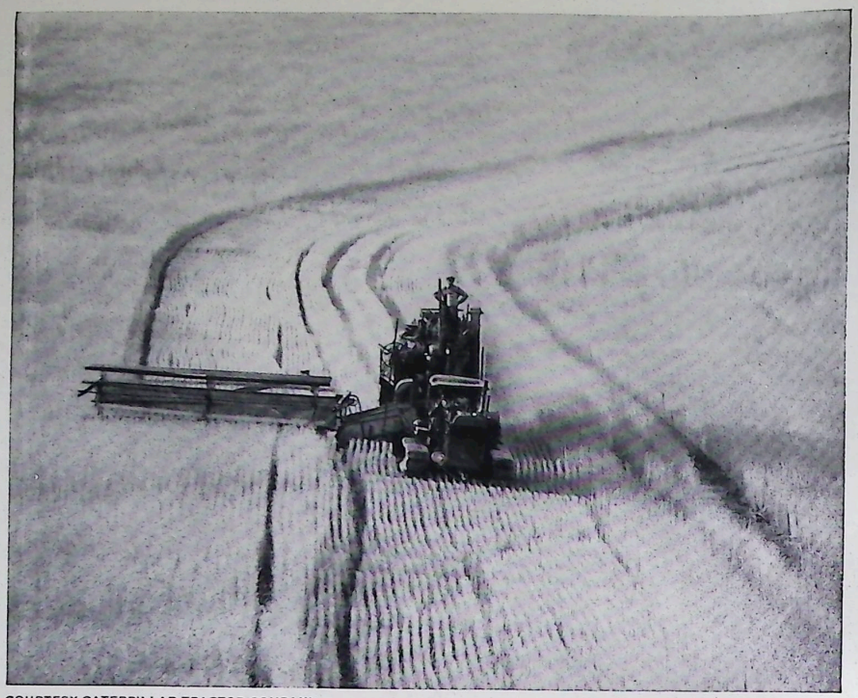
GEORGE EASTMAN *writes on Photography*

Mr. Eastman invented the "Kodak" and produced the first practicable roll film. The Eastman plant has many scientists engaged in photographic research.

OWEN D. YOUNG *writes on Charles G. Dawes*

Mr. Young has come into world prominence for his work on the Reparations Commission.

How *the* GREAT STORY *of* AMERICA *has been Written*



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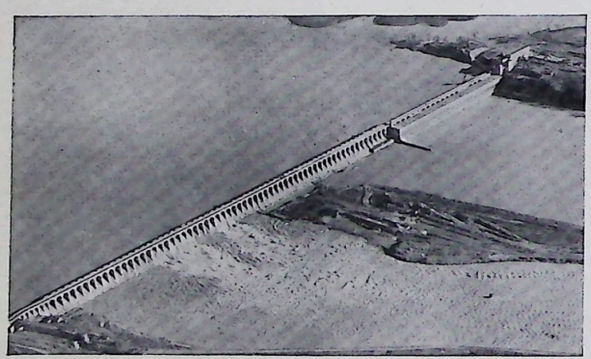
Harvesting wheat with a modern 60-horse power tractor of the Caterpillar Type. (Illustration from the new Britannica.)



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Airplane view of Wilson Dam, 4,300 feet in length, in the Muscle Shoals section of the Tennessee River, Ala.

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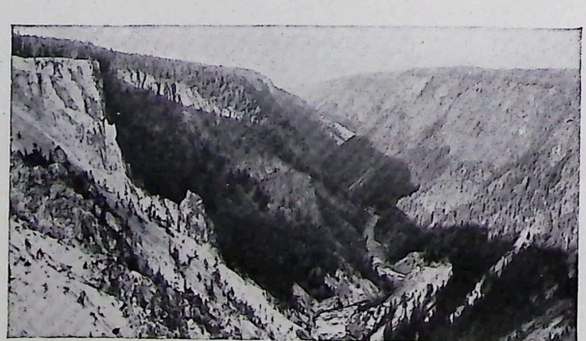

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Deep canyon in the Yellowstone National Park in Wyoming. (Illustration from the new Britannica.)

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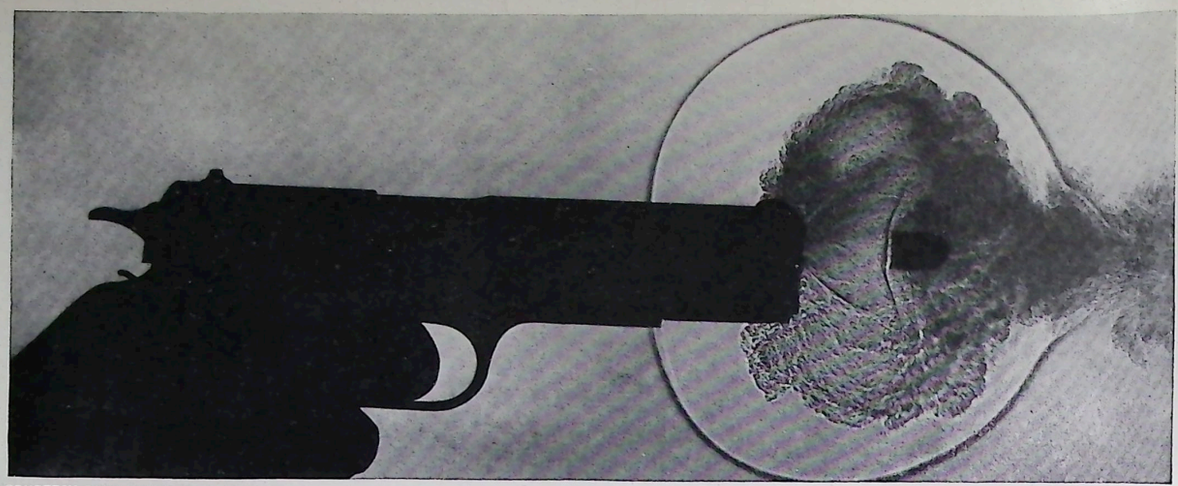

COURTESY CAPT. PHILIP P. QUAYLE

An example of spark photography—automatic pistol with gases and bullet issuing from muzzle. (Illustration from the new Britannica.)

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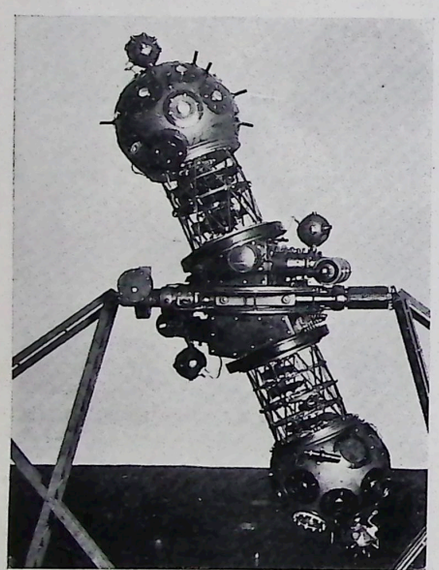


COURTESY CARL ZEISS (LONDON) LTD.

Projection apparatus used in the Dusseldorf Planetarium. (Illustration from the new Britannica.)

YESTERDAY scientists thought of electrons as small particles, today they bring forward evidence to prove them waves.

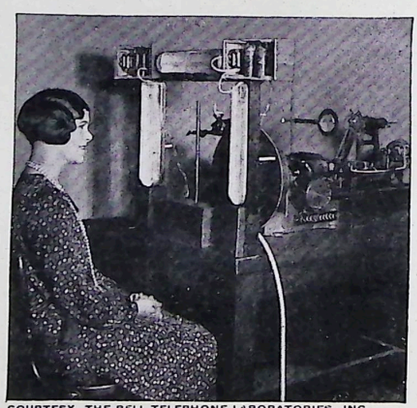
We light our lamps by electricity conducted by wires; now a discovery has shown how to dispense with the wires.

A flash of lightning has been measured and found to complete itself in 1/7,000 of a second.

Hardly a month passes without its own spectacular discovery.

In these stirring times the *new* Britannica is indispensable as the only single source of comprehensive information about what science has accomplished right up to date.

In vivid, simple language, the *new* Fourteenth Edition of the Britannica tells about the discoveries which are remaking our lives.



COURTESY, THE BELL TELEPHONE LABORATORIES, INC.

Apparatus for television—scanning by the "beam" method. (Illustration from the new Britannica)

USHERS IN A NEW ERA OF KNOWLEDGE

HOW TELEVISION WORKS

Television, one of the triumphs of modern physics, is fully explained in the *new* Britannica by Dr. Herbert E. Ives, a pioneer in the field. The article is accompanied by numerous half-tones and diagrams which show the receiving and sending equipment used and explain how it works.

The *new* Britannica also tells about such new developments and possibilities as altitude-finding by radio, "artificial lightning," power from tropical seas, "gearless automobiles," etc.

COURTESY, THE GENERAL ELECTRIC CO.

Lightning flashes seen in Drumright, Okla. Electric station and oil derrick in foreground.

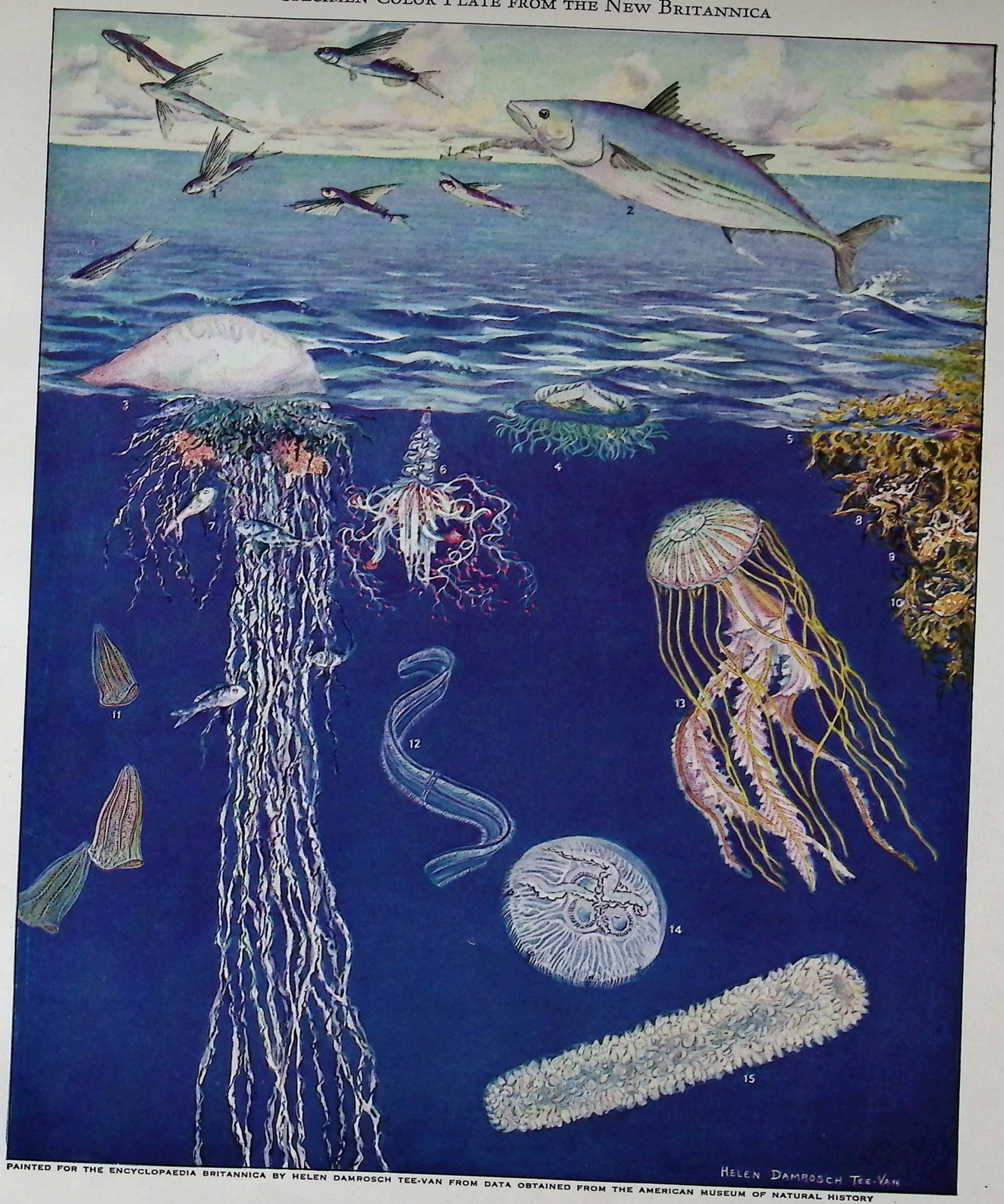
FILMING THE PLANETS

Moving pictures of the planets are being made at the Lick Observatory. "Movies" of Jupiter, the first pictures of the kind ever filmed, have created wide interest wherever shown.

The *new* Britannica has kept in constant touch with progress in all the great observatories.

Life on Mars, astronautics, planetariums which show the stars as seen from any part of the world at any time —these are only a few of the fascinating subjects in the *new* Britannica.

Specimen Color Plate from the New Britannica



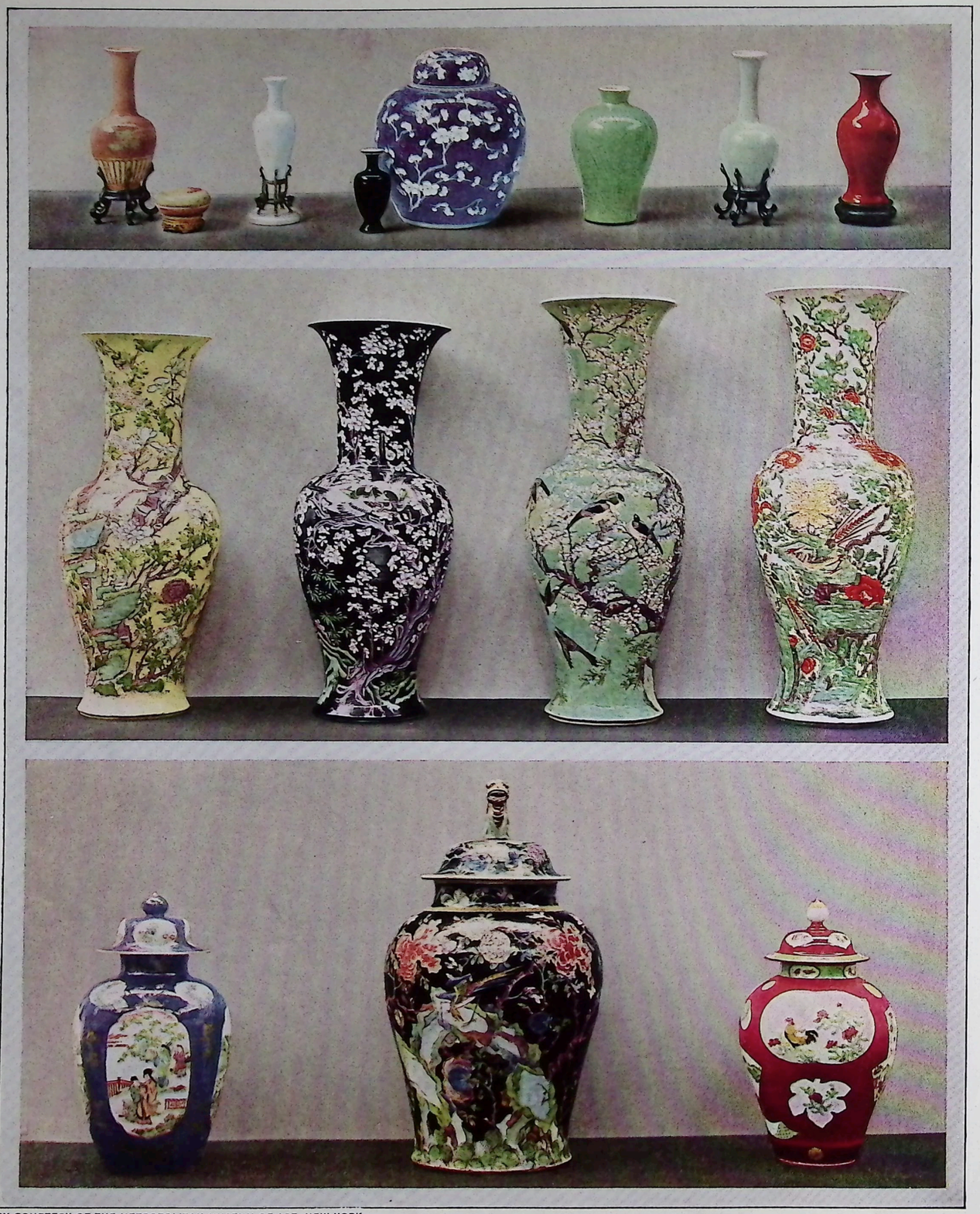
PAINTED FOR THE ENCYCLOPAEDIA BRITANNICA BY HELEN DAMROSCH TEE-VAN FROM DATA OBTAINED FROM THE AMERICAN MUSEUM OF NATURAL HISTORY

All about birds, beasts and fishes

In the *new* Britannica there are articles on all kinds of animal life. And the interest of these articles is greatly increased by the inclusion of many color pictures, like the above. This illustration depicts the surface life of the ocean. Note particularly the Portuguese man-of-war (Fig. 3) whose long tentacles are fatal to all invaders except the diminutive Portuguese man-of-war fish (Fig. 7).

MARVELS of SEA LIFE

Specimen Color Plate from the New Britannica



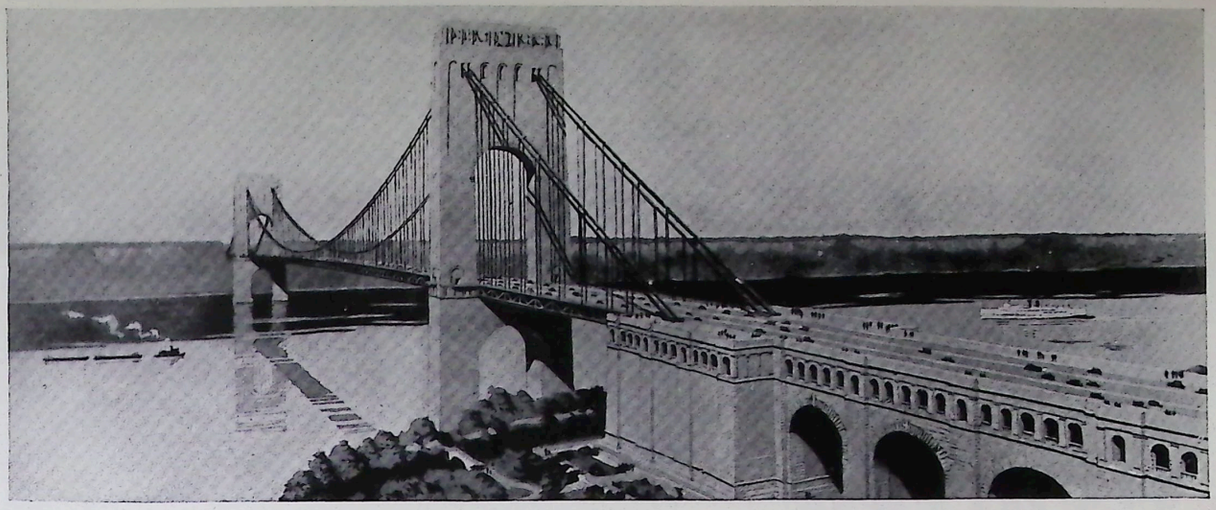
By courtesy of the Metropolitan Museum of Art, New York

Chinese Pottery and Porcelain

Masterpieces of the Potter's Art

Every lover of beautiful things will be delighted with the many articles and illustrative plates on Pottery and Porcelain in the *new* Britannica. They tell the story of pottery from earliest times to the present.

The art of the Chinese potter is fully described in word and picture. The color plate reproduced above shows some fine examples of Chinese porcelains.



COURTESY, PORT OF NEW YORK AUTHORITY

Architectural drawing of the Hudson River Bridge. The project involves a suspension bridge with a single span of 3,500 feet. Work began in 1927. To be opened for traffic in 1932. (From the new Britannica.)

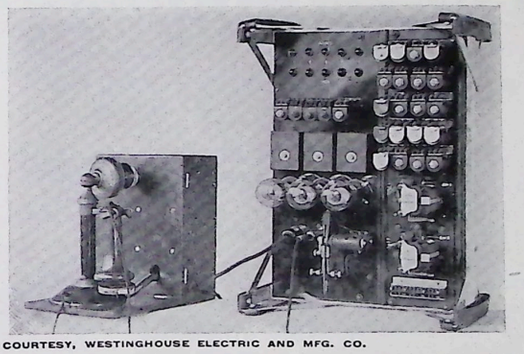
ENGINEERING

THE unique feature of our civilization is the miracle of the machine. The touch of a button swings a gigantic crane, another touch and the monster's fingers lift 500 tons or more.

Overhead the airmail hums its way—underground, thousands are whirled to business. Our food, our clothes; transport on land and sea; buildings; even our amusements we owe to modern engineering.

LATEST RESEARCHES

The Britannica has recorded and interpreted the knowledge of each fresh advance. Here in the *new* Fourteenth Edition is authentic information from the leading authorities on every industry of importance and the equally vital question of the industry's immediate advance. It brings you authentic information from leading authorities on all important industries.



COURTESY, WESTINGHOUSE ELECTRIC AND MFG. CO.

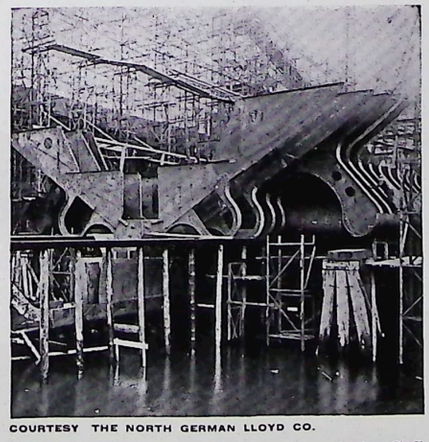
Televox which answers questions put to it and automatically executes orders, enabling use of telephone for remote control.

NEW INVENTIONS

Many new methods of controlling power are also described in the *new* Britannica. One such device is an electric relay so sensitive that by the mere approach of the human hand it can start a railway train or manoeuvre a battleship.

With another instrument exquisite music can be created by merely waving the hands. To understand how all these amazing things work, read the *new* Britannica.

TREASURE HOUSE OF KNOWLEDGE



COURTESY THE NORTH GERMAN LLOYD CO.

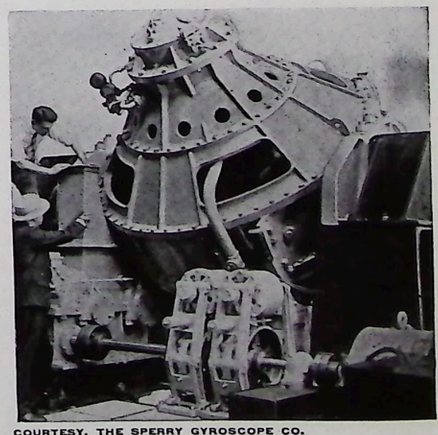
Erecting the propeller frames of the S.S. Europa. The steel frames support the propeller shafts. (Illustration from the new Britannica.)

FIVE hundred of the greatest living authorities have contributed articles to the *new* Britannica—many of them original contributions not to be found elsewhere—on every phase of engineering and mechanics.

These thousands of articles in themselves constitute a magnificent achievement containing all that is new and vitally informative.

ENGINEERS CONTRIBUTE

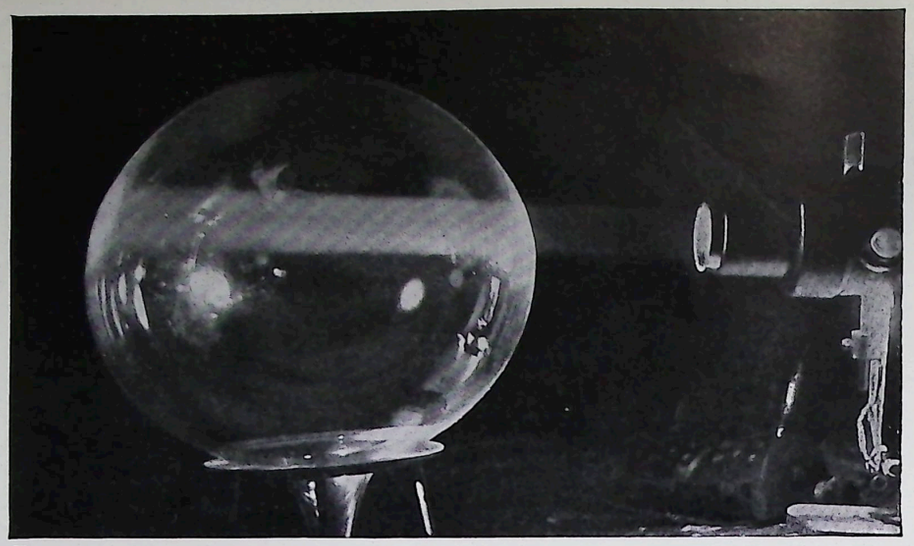
Howard C. Baird, the designer of Bear Mountain Bridge, Sir Richard Redmayne, William Staniar, Dupont Engineering Co., David B. Steinman, Long-span Bridge Specialist, Major General Edgar Jadwin, Chief of Engineers, U. S. Army, Robert Peele, Professor of Mining Engineering, Columbia University—are only a few of the writers who contribute to the wonderful survey of modern engineering in the *new* Britannica.



COURTESY, THE SPERRY GYROSCOPE CO.

Sperry gyroscopic ship stabilizer, one of the largest of its kind ever made for installation on a yacht. Stabilizers prevent rolling. (From the new Britannica.)

The PHYSICAL WORLD



One of many fascinating experiments described in the new Britannica. This picture illustrates the phenomenon of fluorescence—a special kind of luminosity produced in various substances.

In this illustration, the bulb contains a small crystal of iodine. A sodium flame is focussed at the center and the path of the rays through the iodine vapor appears as a cone of yellow light.

The rays from the sodium flame are absorbed by the iodine vapor and transformed into light of a different color. Fluorescence and phosphorescence have recently been used in important practical applications. (Illustration from the new Britannica.)

New and Startling Developments

NEW discoveries and new points of view have revolutionized modern physics. Our whole conception of the physical world has radically changed.

To realize how stupendous a change the new discoveries have already wrought, you have only to think of a few things which, strange yesterday, now enter familiarly into the whole of our lives—radio, movietone, airplane, and the like.

These are applications. But what of the new theories, the new discoveries out of which tomorrow's inventions must come?

The *new* Britannica tells you about them. It gives you the drift and meaning of modern study—new conceptions and new knowledge.

Nowhere will you find so complete a survey of the *new* physics as is presented in the *new* Britannica.

Nowhere else will you find a survey in the making of which so many eminent men of science collaborated. Their names alone are an assurance of authority and up-to-dateness, for these are the very men who have achieved the tremendous advances in this great field.

And nowhere else will you find the whole realm of the physical world brought more nearly within the comprehension of the reader who has little or no knowledge of scientific things.

SOME ARTICLES TO READ

ATOM

Niels Bohr, Head of the Institute for Theoretical Physics at Copenhagen; Nobel Prize Winner, 1922.

ELECTRON

R. A. Millikan, Director, Norman Bridge Laboratory of Physics and Chairman of the Executive Council, California Institute of Technology; Nobel Prize Winner, 1923.

COMPTON EFFECT

A. H. Compton, Professor of Physics, University of Chicago; Nobel Prize Winner, 1927.

VELOCITY OF LIGHT

A. A. Michelson, Professor and Head of Department of Physics, University of Chicago; Nobel Prize Winner, 1907.

RADIOACTIVITY

Sir Ernest Rutherford, Professor of Experimental Physics, University of Cambridge; Nobel Prize Winner, 1908.

PHYSICS AND ETHER

Sir Oliver Lodge, formerly Principal of the University of Birmingham.

SPACE-TIME

Albert Einstein, Professor of Physics, Pr. Akademie der Wissenschaften, Berlin; Nobel Prize Winner, 1921.

QUANTUM THEORY

W. Wilson, Professor of Physics, University of London.

RELATIVITY

Sir J. H. Jeans, formerly Professor of Applied Mathematics, Princeton University.

LIGHT

Sir C. G. Darwin, Professor of Applied Mathematics, University of Edinburgh.

GIVING THE READER AN "AIRPLANE VIEW"

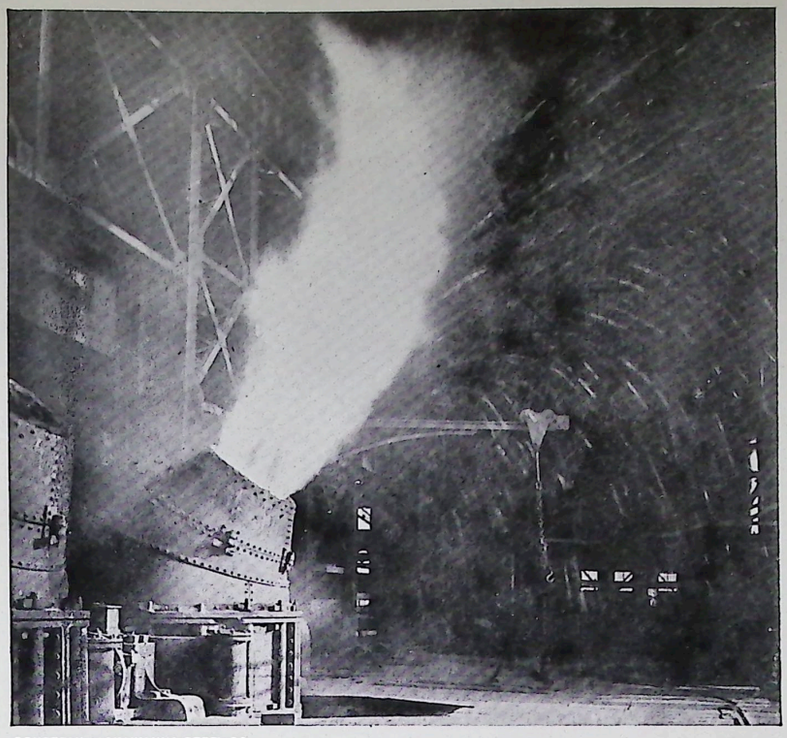
The titles of the more important articles pertaining to physics are listed together under the heading, "Physics Articles." Here they have been separated and classified as main topics, sub-topics and minor sub-divisions, and their relationship shown.

Thus you are given an airplane view of the subject and its component parts.

This is followed by a general introduction to the subject, by Sir Oliver Lodge. In this article the most important and interesting developments are pointed out in a general way.

You are now prepared to proceed with the main divisions, such as Heat, Light, Sound, etc. And these in turn have been still further subdivided for your guidance and study. Even if you read no further than this you would have a thorough grounding in all the major divisions of Physics. And there are scores of other articles.

This same method is followed with all the other important subjects: for example, Aeronautics, Astronomy, Law, etc.



COURTESY LACKAWANNA STEEL CO.

A Bessemer converter in full blow. A quick and inexpensive method of manufacturing steel invented by Henry Bessemer. (Illustration from the article Iron and Steel in the new Britannica.)

The NEW CHEMISTRY

Great Advances that Change Our Lives

GREAT advances have been made in the field of chemistry. In its applications it affects practically all activities of modern life. You can read the fascinating story of what has been done, and the promise for the future, in the *new* Britannica.

For a general survey, you can begin with the article on Applied Chemistry by Dr. Harrison E. Howe. Dr. Howe, a well-known chemist, is editor of "Industrial and Engineering Chemistry." He gives you an indication of how chemistry has been applied in various directions.

IN THE HOUSEHOLD

Here you learn how chemistry guards our food and water supply. How it is apparent in the walls of our houses, in the color of our furniture, the dyes of our rugs.

You learn that our glassware is made by machines under chemical control, our china perfected by the ceramic chemist, and that we are indebted to the chemists for stainless steel.

And if you have wondered how a mechanical refrigerator works, you will learn that a chemical compound circulating in the mechanism expands to cool the food and then is compressed by the motor for expansion again.

IN INDUSTRY

Chemistry is giving to industry countless new substances, often more efficient and economical than nature can provide. The *new* Britannica tells you about them.

It tells you about Cellulose, which supplies a variety of lacquers, several kinds of artificial silk, or rayon, artificial leather and sausage casings.

It tells you about Bakelite and the manifold uses of this "artificial resin," ranging from radio and electrical apparatus to grindstones and jewelry.

Other new developments the *new* Britannica tells you about include the glycols, synthetic fuels, new uses for sulphur, fixation of nitrogen, etc.

HUNDREDS OF SPECIALISTS

Many distinguished chemists co-operated in the preparation of the chemical section of the *new* Britannica. Among them were the following:

FRANK C. WHITMORE
National Research Council

GILBERT T. MORGAN
Director, Chemical Research Laboratory

EDWARD P. WEIDLEIN
Director, Mellon Institute

LOUIS EHRENFELD
Professor at Northwestern University

H. E. HOWE
Industrial Chemical Engineer

LORD RAYLEIGH
Royal College of Science

T. W. RICHARDS
Nobel Prize for Chemistry (1914)

ZAY JEFFERIES
Consulting Metallurgist, Aluminum Co. of America

FULLY COVERED IN NEW BRITANNICA

Chemistry has a direct practical influence on every department of human life. To know what it has done and what it is likely to do tomorrow is a necessity for everyone, and above all for the business man, whose success may depend upon the possession of the latest knowledge.

Every phase of the subject is fully covered in the *new* Britannica by eminent authorities. No corner of the wide field is unexplored or unexplained. And it is written, so far as possible, so that the average person can understand it as well as the specialist.

RECIPES AND FORMULAS

Hundreds of recipes and formulas in the *new* Fourteenth Edition greatly enhance its value for the home.

It tells how to go about laundry work, and the right materials to use.

It tells how to care for leather, the best kinds of preservatives to use, and how to make them.

It tells about abrasives and which to use on various kinds of kitchenware.

It tells how to make furniture polish.

An article on Painting tells how to paint new woodwork or repaint the old; how to paint iron, cement or plaster; how to solve various paint troubles.

Numerous other articles deal with cosmetics, dry-cleaning, refrigeration, nursery equipment, treatment of diseases. And there are many tested recipes for preparing food.

LITERATURE

Complete Survey of the Literatures of the World

ALINARI

A 16th century bookstand. Note the chains.

THE story of all literature, from earliest times to current writings is contained in the *new* Britannica—presented more completely than ever before.

The various literatures of the world are surveyed as far as possible on national lines.

And there are detailed studies of the chief authors besides.

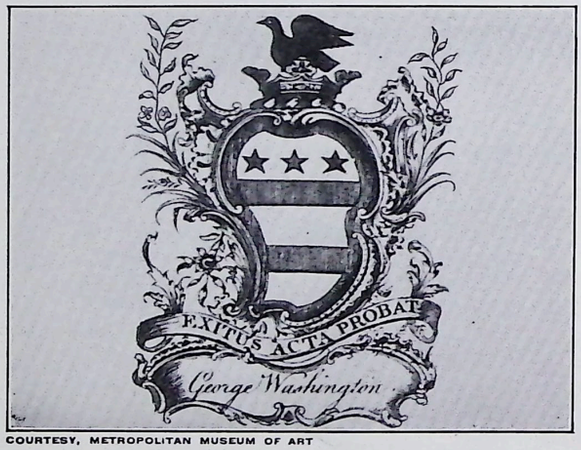
The biographies of authors in the *new* Britannica are the most complete accounts of the lives of great writers ever collected and published in any single work.

As you read them, you begin to understand why some books die, while others live on.

You will find the *new* Britannica particularly helpful in the way it explains the forms of literature—novel, drama, essay, poem, etc. Each of these is dealt with in a separate article.

Just as there are books for every taste, so there are articles in the *new* Fourteenth Edition of the Britannica to lead you pleasantly and under masterly guidance to knowledge and enjoyment of them.

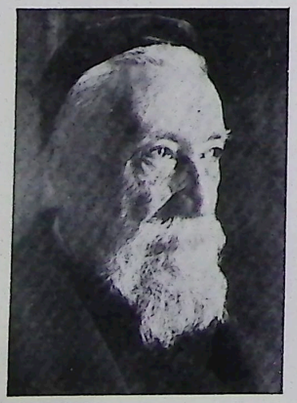
Among the contributors you will find many of the world's leading authors. And as they speak to you, through the pages of the *new* Britannica, these masters of literature will show you how to select and understand the best,—from all the literature of all the world.



COURTESY, METROPOLITAN MUSEUM OF ART

George Washington's book-plate. Washington owned a set of the Third Edition of the Britannica.

LIVES AND WORKS OF GREAT AUTHORS



UNDERWOOD

Anatole France

HISTORY AND DEVELOPMENT OF THE NOVEL BY DISTINGUISHED CRITICS

TODAY we are linked more than ever before with the whole world through newspapers, better communication, brisker exchange of merchandise, the wireless, etc.

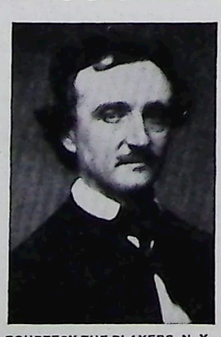
Our interests in our fellowmen have become broader, deeper and more varied.

This change is reflected most clearly in the modern novel—the typical literary product of this age.

Some 12,000 words in the new Britannica are devoted to this form of literature.

In an article completed shortly before he died, Sir Edmund Gosse traces the history of the novel. And Lion Feuchtwanger, author of "The Ugly Duchess," explains the various types of fiction and shows the effect the films have had on it.

You, yourself, may become an able critic, if you have the *new* Britannica.



COURTESY THE PLAYERS, N. Y.

Edgar Allan Poe

PRESS PORTRAIT BUREAU

Thomas Hardy

JENGHIZ KHAN

This Russian Theatre costume, conceived by A. Stschekotikina, achieves a fantastic effect expressive of Jenghiz Khan, the "perfect warrior" who terrorized the Eastern World in the 12th century by his conquest of China and bordering nations. The colors are used symbolically. Gold indicates wealth; red, passion; yellow, Chinese imperialism; and the blue background below adds a note of mystery and terror. (Note use of gold in reproduction.)

FROM JOSEPH GREGOR AND RENÉ FÜLÖP-MILLER, "DAS RUSSISCHE THEATER" (AMALTHEA-VERLAG)

THE ART AND TECHNIQUE OF THE THEATRE

The arts which together comprise our modern theatre are described in the *new* Britannica by those famous artists and technicians who are in the forefront of the modern theatrical movement.

Prominent among the contributors on various phases of the theatre are: Joseph Urban, Norman Bel Geddes, Robert Edmond Jones, Kenneth Macgowan, Max Reinhardt, and Otis Skinner. Herman Rosse and Ernest de Weerth write on Theatrical Costume Design.

St. John *in the* Wilderness *by Velazquez*

Treasures from the World's Museums

Children as well as their elders will be fascinated by the superb collection of color plates in the *new* Britannica. They constitute a private art gallery of inexhaustible value.

Especially are they valuable as a guide to the world's great paintings, many of which, little or well-known, from public and private collections, are reproduced in full color.

The Velazquez reproduced above, "St. John in the Wilderness," is now in the Art Institute of Chicago.

The various techniques of painting are also completely described in the *new* Britannica.

SPORTS *and* GAMES

PACIFIC AND ATLANTIC PHOTOS, INC.

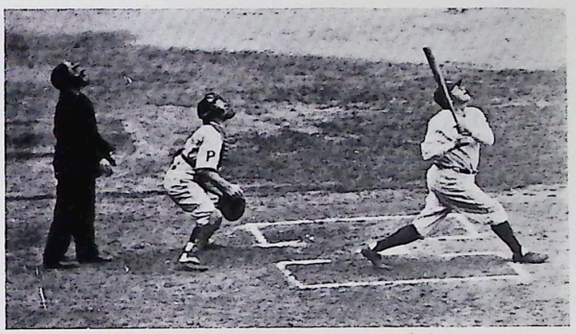
Greyhound racing at Hiahlea, Florida. The fastest greyhounds attain a speed of 35 miles an hour. (Illustration from the new Britannica.)

The Information You Want about Them

COURTESY EDWIN LEVICK

Wood Club Play (follow through) demonstrated by Bobby Jones.

CHILDREN'S games are not overlooked in the *new* Britannica. Nor are such popular favorites as bridge, poker, pinochle, casino, fan-tan, five hundred, euchre, whist, solitaire, etc., etc.



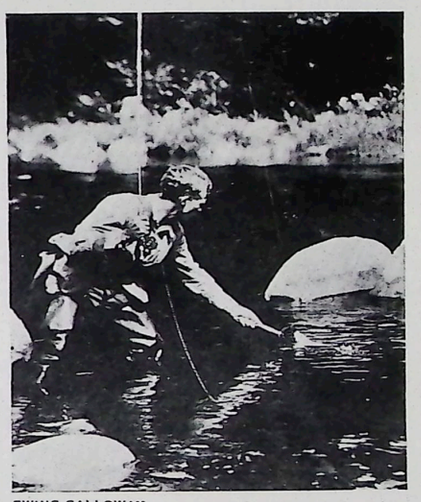
UNDERWOOD

"Babe" Ruth knocking a home run. (Illustration from the new Britannica.)

SECTION after section of the *new* Britannica is devoted exclusively to practical and helpful information on sports and games.

Leading authorities have written them. They not only give expert comment, but also suggest how best to play and enjoy every game.

Whatever your favorite sport may be, and regardless of your skill in playing it, you will find that the articles in the *new* Fourteenth Edition of the Britannica will help you get the most out of it.



EWING GALLOWAY

Landing fish with a net, commonly used for catching game fish.

ALL the major articles tell "How to play—" football, baseball, tennis, or whatever it may be, thus giving the interested sportsman practical suggestions both in word and picture.

A COMPLETE SPORTS LIBRARY

IMPORTANT ARTICLES

GENERAL SURVEY: H. J. Savage, in charge of Carnegie Foundation Athletics.

BASEBALL: John B. Foster, Editor of Spalding's Official Baseball Guide.

BASKET BALL, James Naismith, Department of Physical Education, Kansas University.

BILLIARDS, Col. A. E. Mainwaring, Author of *Billiards*.

BOXING, Gene Tunney, World's Heavyweight Champion, retired 1928.

BRIDGE, Milton C. Work, Lecturer and Author of *Auction Bridge Complete*.

INTERNATIONAL NEWSREEL

Jockeys settling for race. (Illustration from the new Britannica.)

WRITTEN BY EXPERTS

FOOTBALL, F. H. Yost, Director Intercollegiate Athletics, University of Michigan.

GOLF, Grantland Rice, Sports Staff, *New York Herald-Tribune*.

HORSERACING, John L. Hervey, Editor, *Horse Review*.

LAWN TENNIS, Helen Wills, World Champion.

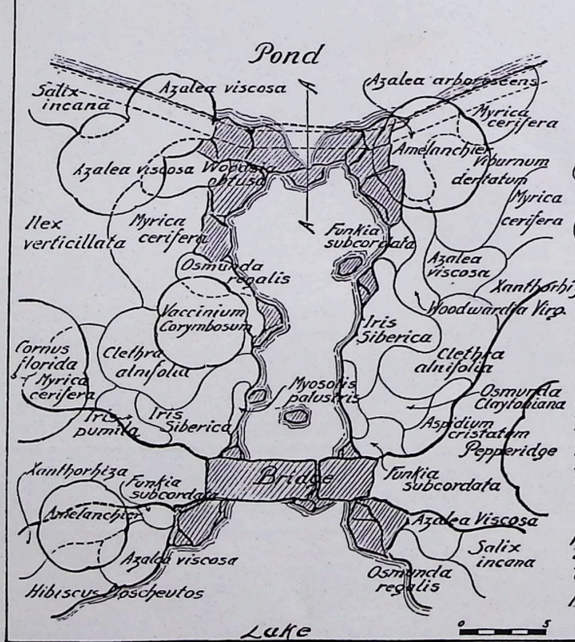
OUTBOARD MOTORS, Charles H. Hall, Editor, *The Motor Boat*.

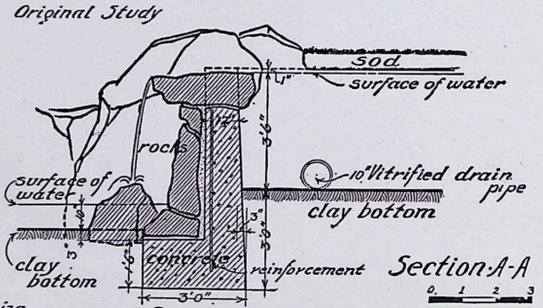
YACHTING, Herbert L. Stone, Editor, *Yachting Magazine*.

Landscape Architecture

Landscape architecture for the large country estate or the small suburban or city garden is fully covered in the *new* Britannica. It is at once a source of inspiration and a practical guide to all home builders.

Original Study





Planting List

Pepperidge · existing	Iris Siberica	
Cornus florida	Iris pumila	
Amelanchier	Funkia subcordata	
Vaccinium corymbosum	Myosotis palustris	
Viburnum dentatum	Osmunda regalis	
Ilex verticillata	Osmunda Claytoniana	Ferns
Azalea viscosa	Woodwardia Virginica	Ferns
Azalea arborescens	Aspidium cristatum	Ferns
Myrica cerifera	Woodsia obtusa	Ferns
Clethra alnifolia	Aquilegia	Among shrubs
Salix incana	Campanula carpatica	Among shrubs
Hibiscus Moscheutos	Aster alpinus	Among shrubs
Xanthorhiza	Hemerocallis flava	Among shrubs

Manmade Naturalistic Composition through manipulation of natural materials and the transplanting of fully developed trees and plants collected in the neighborhood.

A waterfall on the estate of Myron C. Taylor, Locust Valley, Long Island. Ferruccio Vitale and Alfred Geiffert, Jr., landscape architects

HOME IMPROVEMENT

SPECIMEN MAP FROM THE NEW BRITANNICA

Encyclopædia Britannica

Printed in Edinburgh, Scotland by John Bartholomew & Son Ltd.

There are more than 500 maps in the *new* Britannica, of which 192, in full colour, are assembled together in the Atlas-Index volume, a new feature. Each of these has been specially lithographed for the new edition by Messrs. John Bartholomew & Son, Ltd., the well-known map makers of Edinburgh, and the Index gives quick reference to 100,000 place-names shown on these maps. In addition to the 192 colour maps in the Atlas section, there are 300 black-and-white maps scattered through the text and about a dozen in full colour.

Encyclopædia

192 BEAUTIFUL ATLAS MAPS LIKE THE ABO

Britannica

Printed in Edinburgh, Scotland, by John Bartholomew & Son, Ltd.

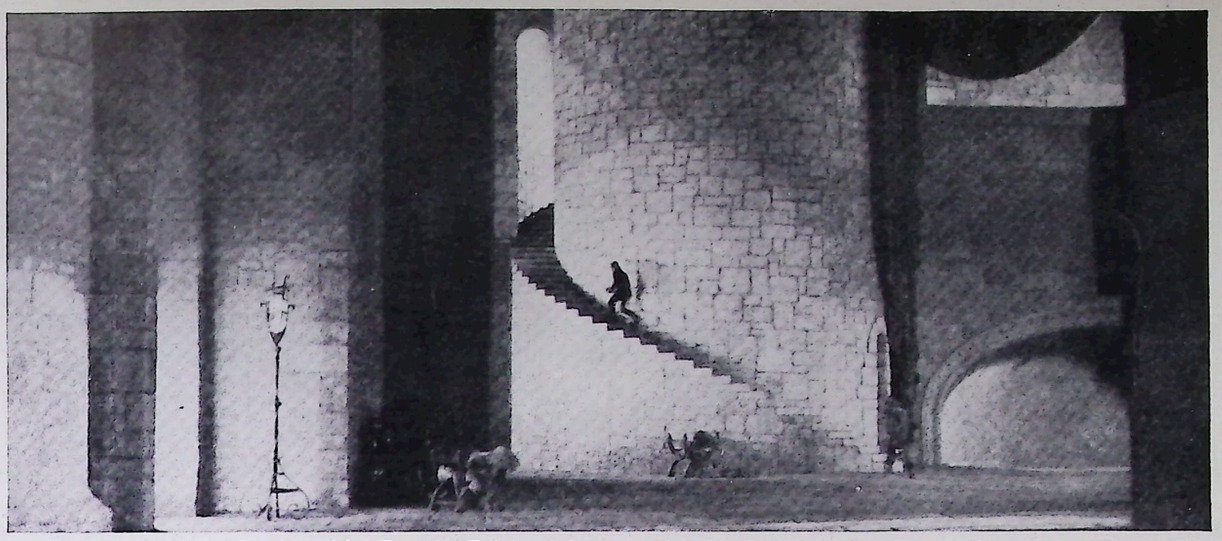
VE WERE SPECIALLY MADE FOR THIS WORK

SPECIMEN MAP FROM THE NEW BRITANNICA

Encyclopædia Britannica

Printed in Edinburgh, Scotland, by John Bartholomew & Son, Ltd.

The Atlas contains both physical and political maps. These include maps of the world, of every country, and of every important political unit. In addition to the 192 colour plates in the Atlas proper there are, in the body of the Britannica, twelve full-colour historical and geological maps, making a total of 204 colour maps. In addition there are over 300 black-and-white maps, consisting of detail plans of towns and districts, maps of campaigns, plans of battles, and a lavish series of historical charts and maps, including, for example, a full-page map and some minor plans of the Roman empire. *There is no collection of maps on sale that combines all these features.*



Setting by Wilfred Buckland for Douglas Fairbanks' production of "Robin Hood." (From the new Britannica.)

The DRAMA AND THE 'MOVIES'

COURTESY U. F. A.

Emil Jannings in "The Last Laugh." (From the new Britannica.)

WHETHER it be the dance of the Tsam in some ancient Mongolian monastery with demon masks and dizzy whirling or an O'Neill play, the *new* Britannica will give you the information you want about the drama.

In the *new* edition a large section—about 150,000 words and many illustrations—is devoted to the drama of all nations.* In the preparation of this department of the new Fourteenth Edition, many distinguished men and women collaborated.

SURVEY OF AMERICAN DRAMA

You will find a survey of American drama by George Jean Nathan. English drama is by Ivor Brown, dramatic critic of the Manchester Guardian. W. T. Benda describes masks and tells how to make them.

Max Reinhardt, St. John Ervine, Lee Simonson, Robert Edmond Jones and Kenneth Macgowan—these and many others in the *new* Britannica *help you to get the most enjoyment from the theatre.*

* This is the equivalent of nearly two average size volumes.

© MARY DALE CLARKE

Walter Hampden as Cyrano de Bergerac. (From the new Britannica.)

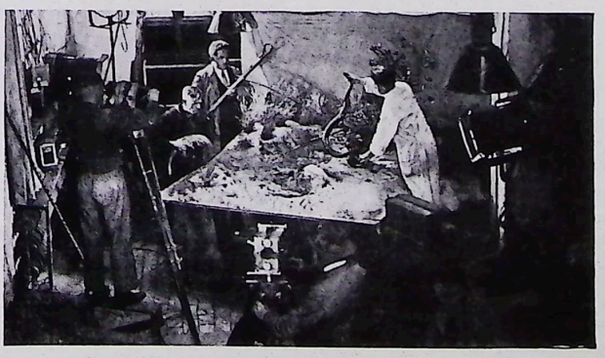
WHOLE STORY IN THE NEW BRITANNICA

THE NEW "TALKIES"

WHAT is the future of the "talkies?" What influence will they have on the theatre and vaudeville? These are a few of the problems now facing the screen and stage.

In the *new* Britannica you find every aspect of the art and industry of motion pictures discussed by Jesse Lasky, Terry Ramsaye, A. N. Goldsmith and Cedric Gibbons. Lon Chaney tells you about make-up; Milton Sills writes on Acting, Cecil De Mille on Direction.

Nowhere else can you find so comprehensive a survey of motion pictures as in the new Fourteenth Edition of the Britannica.



COURTESY GENERAL PHOTOGRAPHIC AGENCY

Wild animal photography in the studio. When filmed, this fight between a mongoose and a snake will appear to have taken place in a natural desert setting. (Illustration from the new Britannica.)

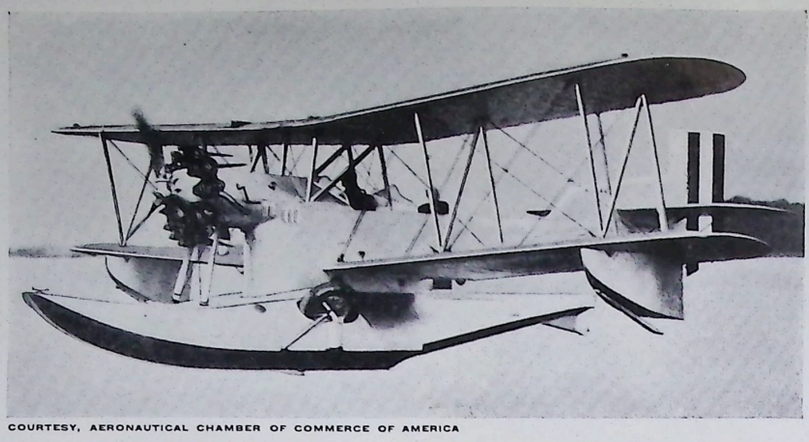
ARTICLES ON MUSIC

THE *new* Britannica contains a lucid, simple and complete account of the development of music through the preharmonic stage to the origin of harmony, down to the latest compositions of today.

It provides hundreds of important articles by the world's greatest musicians, critics, and technical experts on musical instruments, composers, and forms of composition. All the important musical terms are also explained.

The *new* Britannica will enable you and your family to quickly recognize, understand, and fully enjoy good music—whenever and wherever you hear it.

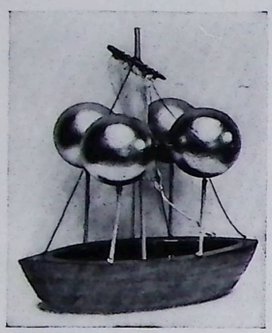
AVIATION



COURTESY, AERONAUTICAL CHAMBER OF COMMERCE OF AMERICA

Loening "Amphibian," a recent addition to the United States Navy. (Illustration from the new Britannica.)

Complete Authoritative Story by Well-known Experts



COURTESY SIMS & CO.

Above: Francesca de Lana's flying boat conceived about 1650. Right: Junker G31, an all-metal, 20-passenger aeroplane, capable of flying one thousand kilometres without landing. (Illustrations from the new Britannica.)

THE progress that aviation has made, the fundamentals of flying, the construction of aeroplanes, hydroplanes and gliders, lessons on operating a plane and other detailed information which every modern man and woman interested in aviation would like to know—all are in the *new* Britannica.

Amazing new developments in air routes and transport are described, and maps of air routes, present and projected, illustrate these articles.

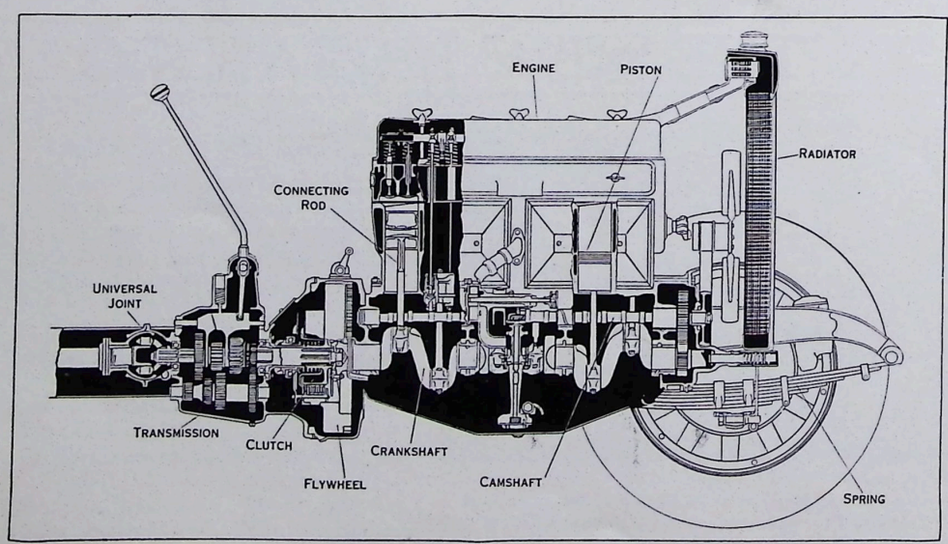
A series of maps shows all the principal trans-oceanic flights that have been made.

The *new* Britannica fully describes the most modern uses to which aircraft are put, such as their use for forest fire protection, destruction of insect pests and archaeological discovery.

TOPICAL PRESS

[Aerial Law is covered in the *new* Britannica by three legal experts of distinction — Dr. M. W. Royse, J. M. Spaight, and the late Dr. H. L. Bellot.]

PRACTICAL SUGGESTIONS FOR MOTORISTS



Partial section front end of motor car chassis. (Illustration from the new Britannica.)

THE great strides made by the automobile industry within the last two decades are described in detail in many expert articles. In the *new* Fourteenth Edition every phase of the automotive field is discussed, car designing, production, merchandising, etc.

The main article on Motor Cars, some 24,000 words long, was written by experts of the General Motors Corporation.

NEW ROAD MAPS

Furthermore the *new* edition contains many practical suggestions for the motorist. There are articles on the care and upkeep of a car, lubrication, etc. Besides, there is a road map of every important American highway.

COMMERCIAL TRANSPORT

The future co-operative use of rail, road and air transport is related in the *new* Britannica by authorities whose articles are of real reference value to all who travel or are interested in the various forms of commercial transport.

PAINTED FOR THE ENCYCLOPÆDIA BRITANNICA BY ISABEL COOPER AFTER SPECIMENS IN THE AMERICAN MUSEUM OF NATURAL HISTORY

Moths of the New World

Nature's Winged Creatures

The *new* Britannica is one of the finest guides to Nature Study you could have. It tells you about all kinds of plant and animal life, and shows hundreds of subjects in color, like the above.

Of the varieties of moths in this picture, two are particularly interesting: (Fig. 3) one of the hummingbird sphinx moths and (4) the luna moth, considered the most beautiful North American insect. The latter grows to a length of three inches.

DRAWN FOR THE ENCYCLOPAEDIA BRITANNICA BY H. GRONVOLD

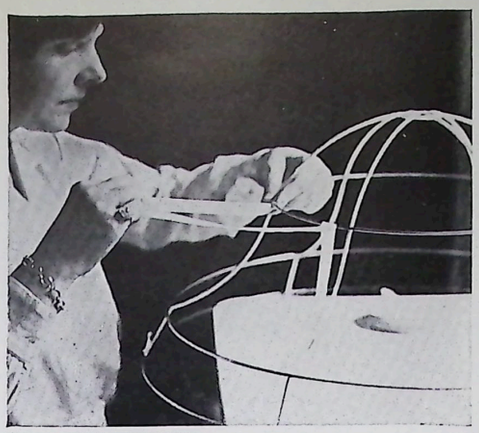
BIRDS of PARADISE

THE WONDERS OF BIRD LIFE

Can you identify the common birds? The color plates in the *new* Britannica will help you. And they will introduce you to those less known, such as Birds of Paradise, shown above.

Many interesting phases of bird life are explained in the *new* Britannica. Particularly interesting are those dealing with protective coloration, and behavior.

There is a general article on birds. The various kinds of birds are treated in separate articles.



COURTESY WARREN E. COX

Making a lamp shade; wrapping wire frame with silk tape to which linings will be sewn. (From the new Britannica.)

Correct position of the burin for engraving on wood. (Illustration from the new Britannica.)

PUBLISHERS PHOTO SERVICE

Forming the sides of a glass flower by means of carbon pencil and blowpipe flame. (Illustration from the new Britannica.)

The Britannica Tells You HOW *to Do Things*

NOW you can turn to the Britannica for practical information about your work, your hobby, or your home. In the *new*, humanized Fourteenth Edition you will find answers to all the "whys" and the "wherefores," the "whos" and the "whats" and the "hows" of human inquisitiveness.

SERVES EVERY-DAY NEEDS

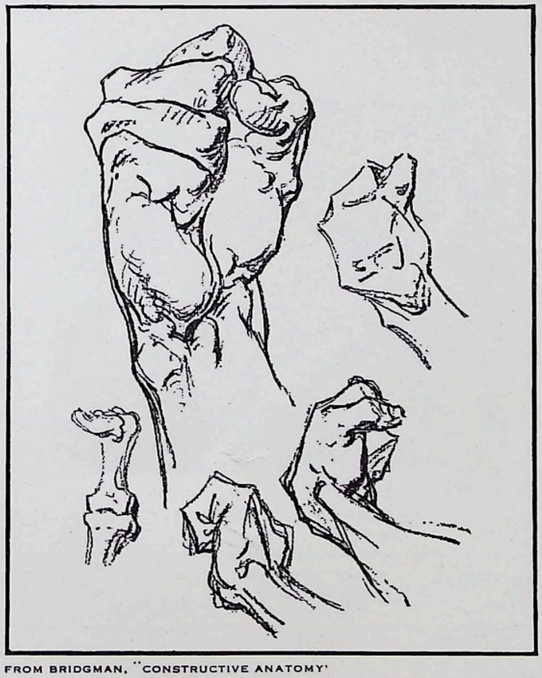
The *new* Fourteenth Edition recognizes that, in the eyes of this generation, the correct principles of swimming may be as important to one person as the discovery of a new star to the astronomer; or domestic science as important to a woman in the management of her home as the methods of Mr. Ford to a manufacturer.

No human activity is beyond the scope of its net.

AUTHENTIC INFORMATION

The *new* Britannica is full of practical information that will enable you to deal intelligently with all manner of problems, large and small.

And, as is true of everything you find in the *new* Fourteenth Edition of the Britannica these practical every-day articles bear the stamp of authority.



FROM BRIDGMAN, "CONSTRUCTIVE ANATOMY"

Studies of the hand on the wrist indicating power or force. (Illustration from the new Britannica.)

MORE practical, every-day information will be found in the *new* Fourteenth Edition than in any previous edition or any other work of similar nature.

It leads the way in adapting the encyclopaedia to the new needs of this new age.

HOW TO DO THINGS

The *new* edition tells you how to do a multitude of things.

Would you like to know how to carve correctly? The *new* Britannica tells you the proper equipment to use and the right way to proceed.

Would you like to know how to sew? The *new* Britannica provides the information.

Would you like to know how to box, swim, dance, fence, skate? Play golf, tennis or contract bridge.

How to get the best results from your radio, movie camera or motor car?

SIMPLY TOLD

The *new* Britannica tells how. And it tells it with the greatest possible simplicity.

This new edition of the Britannica brings to every home, to every member of the family, an invaluable storehouse of reliable and useful information.

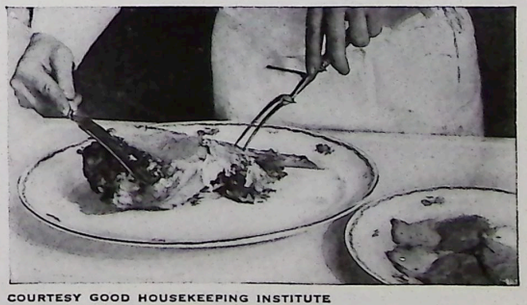
An artist-potter transforming a lump of clay into a piece of pottery on the potter's wheel.

A HANDBOOK OF "HOWS"

To all the "hows" that come up in the home, there is a ready answer in the *new* Britannica.

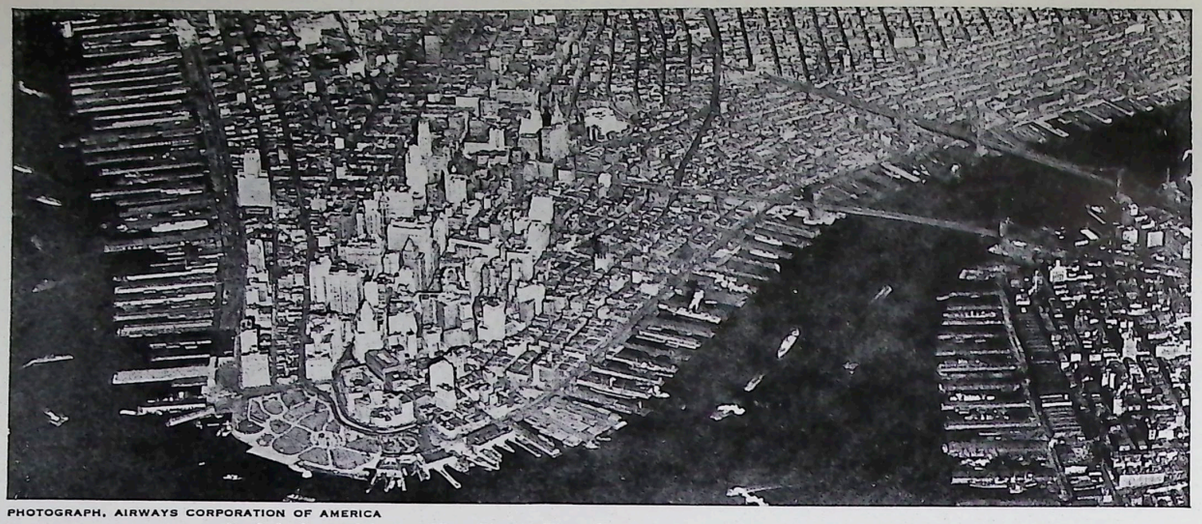
It tells how to build, paint, use carpenters tools; how to manage a home, cook, sew; how to make lace, batik and baskets.

Hundreds of other processes are explained in word and picture in this essentially practical, *new* Britannica.



COURTESY GOOD HOUSEKEEPING INSTITUTE

Second position in carving a leg of mutton.



PHOTOGRAPH, AIRWAYS CORPORATION OF AMERICA

Aerial view of lower New York City. (Illustration from the new Britannica.)

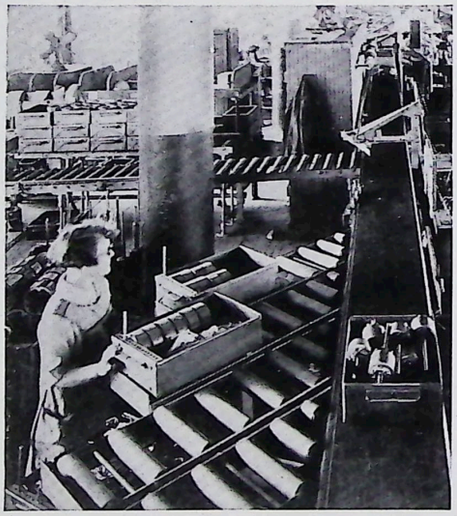
MASS PRODUCTION

and the Story of Financial Wizards

BUSINESS men, engineers and scientists have given freely of their time, thought and energy to enable the Britannica, in the *new* Fourteenth Edition, to present the first comprehensive story of large-scale industry ever written.

Every angle of manufacture and industry is discussed by competent authorities—new improvements in machinery, production methods, factory management, etc.

The *new* Britannica includes the first comprehensive survey ever made of the natural resources of the world. The secret of Mass Production is fully explained.



COURTESY ROBBINS AND MYERS

A type of power-driven conveyor

NEW METHODS FOR THE CONDUCT OF BUSINESS

More than a thousand valuable articles on various business subjects, from details of book-keeping to corporate finance, enrich the *new* Fourteenth Edition and make it indispensable for the businessman.

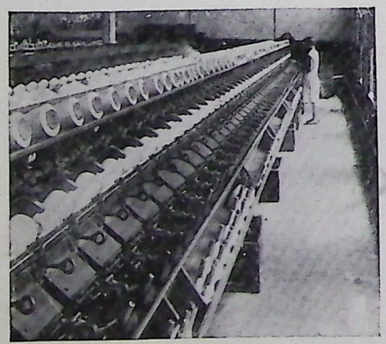
Scores of articles include—Advertising, Banking and Credit, Business Ethics, Marketing, Scientific Management, Business Budgeting, Trade Forecasts, etc.

The *new* Britannica is of invaluable assistance in the successful management of a modern business.

It will supply you with necessary business information and furnish dollar-and-cents ideas.

Increasingly many men find it profitable to own two sets, one in the office and one in the home.

LABOR AND MODERN BUSINESS



COURTESY THE STANDARD-COOSA-THATCHER CO.

Cone winders—one step in the process of mercerizing. (Illustration from the new Britannica.)

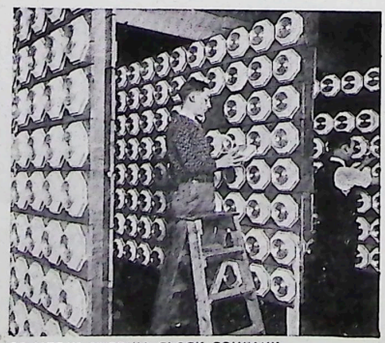
THE *new* Fourteenth Edition contains a full and impartial study of the whole labor problem. It tells you just what organized labor is trying to do and what it has already accomplished—information of intimate, personal concern to every business man.

More and more labor is admitted to representation in the management of modern business. This new trend and other changes in the condition of labor are clearly elucidated in the *new* Fourteenth Edition of the Britannica.

ARTICLES ON LABOR

The article on Hours of Labor gives a complete survey of conditions throughout the world.

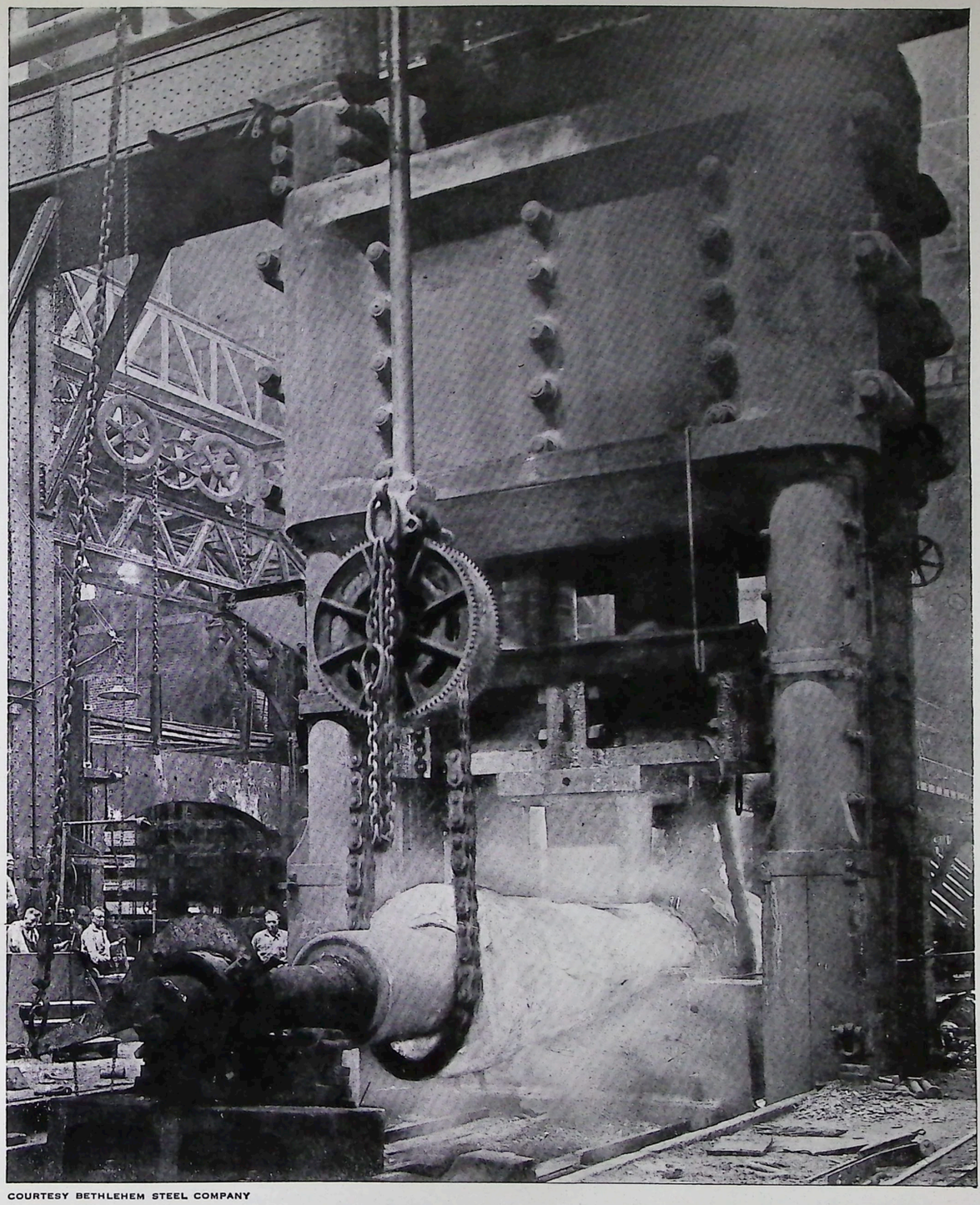
Hundreds of other articles deal with subjects such as Profit Sharing, Wages, Labor Turnover, Unemployment, Trade Unions, American Federation of Labor, Strikes and Lockouts, Labor Law, Industrial Relations, etc., etc.



COURTESY ANSONIA CLOCK COMPANY

Racks of kitchen clocks undergoing inspection after complete assembly. (From the new Britannica.)

ILLUSTRATION FROM THE NEW BRITANNICA



COURTESY BETHLEHEM STEEL COMPANY

A forging operation on a 14,000-ton hydraulic press at the Bethlehem Steel Company's plant

BUSINESS LEADERS CO-OPERATE

The section of the *new* Britannica dealing with business and industry was prepared with the co-operation of the following men, acting as departmental editors or advisers:

CHARLES H. SABIN
C. G. STOLL
ELMER A. SPERRY
FRANK B. JEWETT
JOHN R. COMMONS
SAMUEL REYBURN
GILES L. COURTNEY
EDWARD R. WEIDLEIN

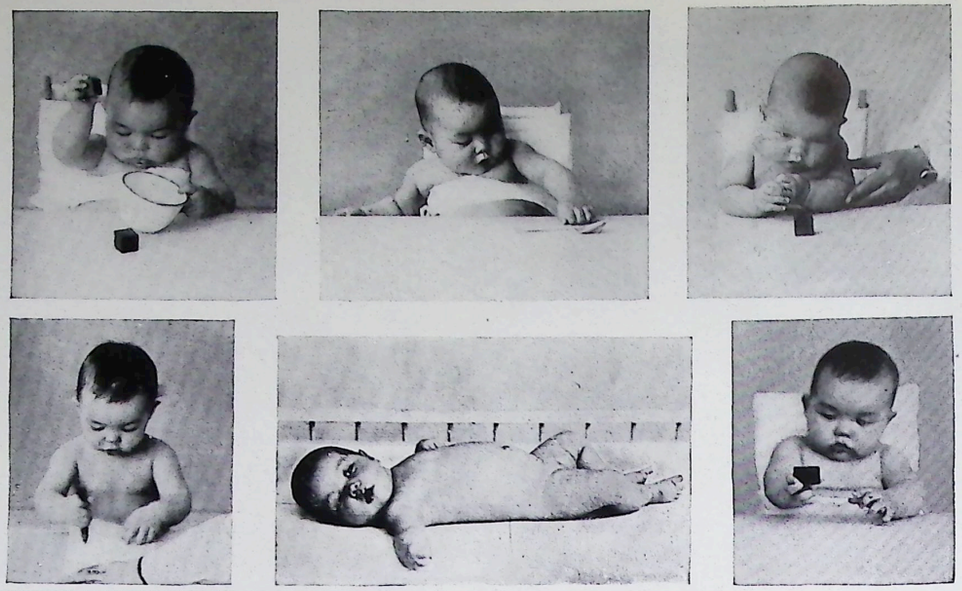
STORY OF MODERN BUSINESS

In the scope of the information it presents, the *new* Britannica is the best possible guide to business. Modern trends and developments are freely discussed.

A unique feature of the *new* edition is the corporation "biographies"—descriptions of leading businesses and industries, most of which were written by the heads of the companies themselves.

From the president of the largest corporation in the world to the youngest clerk, more men and women are using the *new* Britannica today than any similar work.

The BEST BUSINESS GUIDE



COURTESY YALE PSYCHO-CLINIC, YALE UNIVERSITY

Various stages in the growth of child behavior from birth to first birthday. (Illustrations from the new Britannica.)

As a Guide for Your CHILDREN'S PROGRESS

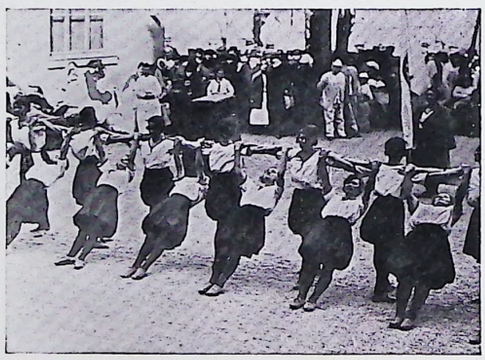
Sixth grade boys making boats, Horace Mann School. (Illustration from new Britannica.)

FOR every home with children the *new* Britannica is well-nigh indispensable. It gives to every father and mother the latest, most authoritative word on every subject. It provides children with a treasure-house of fascinating, broadening knowledge.

For parents and children the pages of this *new* edition are a great adventure.

Teachers and parents will find the *new* Fourteenth Edition of the Britannica full of splendid help and suggestion in the care and training of children.

The child's good in every department of life is provided for. To every phase of his life it brings the fullest measure of assistance and inspiration.



COURTESY SWEDISH STATE RAILWAYS

Formal drill in Swedish gymnastics, Stockholm. (Illustration from the new Britannica.)

THE NEW BRITANNICA SERVES ALL AGES

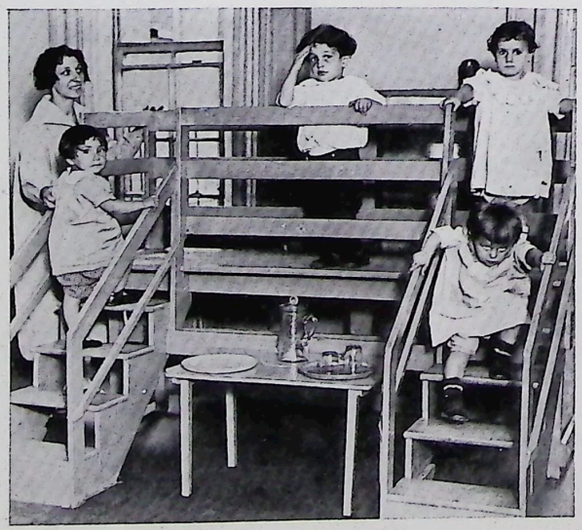
Most parents realize that an encyclopaedia is the most useful book they can give their children.

But the parent who decides to purchase such a book should be sure that it is authoritative, trustworthy, accurate.

And it should be a book that will serve for many years. For the child is quick to put away childish things. He aspires to and wants to use the books that grown-ups use.

The *new* Britannica serves all ages. Its interest to childhood has been increased a hundredfold in this *new* edition. In homes where it has gone, children turn to it constantly.

As Arthur Brisbane has said: "It is really a misfortune for a family of children to grow up without the Encyclopaedia Britannica at hand."



COURTESY WIDE WORLD PHOTOS

Children learning to go up and down stairs. (Illustration from the new Britannica.)

CHILDREN DELIGHT IN THESE VOLUMES

Children delight in the endlessly varied and profusely illustrated pages of the *new* Britannica.

No matter how often they turn its pages, they find something new and something true; something to make and something to do.

It makes the search for knowledge exciting. It makes their school work easier, more interesting and profitable. It trains them to use their minds, think accurately and reason keenly. They acquire a certain independence of judgment.

You can rely upon the trustworthiness of the *new* Britannica. It will be a true inspiration, and a safe guide for your children. When you place it in their hands, you give them all the advantages of a liberal education.

How to make masks

Would you like to make a mask? In the *new* Britannica Benda tells you—how to make your design, the best materials to use, and how to proceed through each process up to the final varnishing.

This is but one of the many practical articles in the *new* Britannica that tell you how to do things. It is one of the finest guides to doing things ever published.

Little theatre movement

The Little Theatre Movement receives full treatment in the new Britannica, and there are many articles of special interest to those engaged in amateur theatrical productions. These cover such essential phases as Stage Design and Equipment, Lighting, Costume Design, Make-up, Acting and Direction. In the new Britannica you have a complete guide to the art and technique of the theatre.

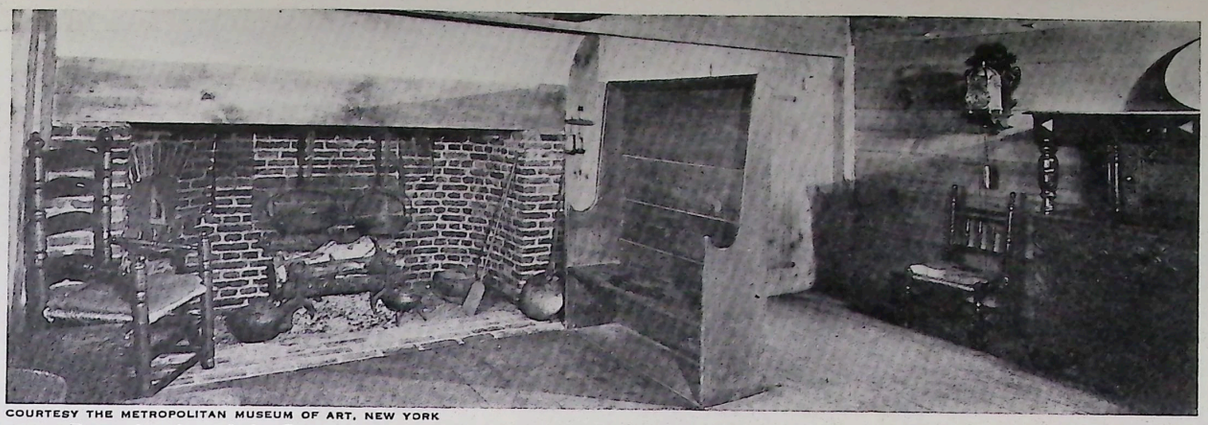
Modern Masks *by* Benda

PAINTED FOR THE ENCYCLOPAEDIA BRITANNICA BY ISABEL COOPER, AFTER A SPECIMEN IN THE AMERICAN MUSEUM OF NATURAL HISTORY, NEW YORK

The SAILFISH

A SPECIES OF SWORDFISH MUCH SOUGHT BY DEEP-SEA ANGLERS

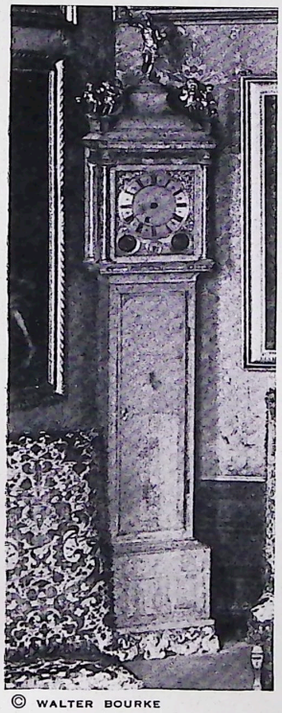
The Sailfish, found in the waters around Lower California and Florida, has a long, high back fin which is often raised above the surface of the water. The Pacific Ocean species grows 6 to 10 feet in length and weighs 50 to 150 pounds.



COURTESY THE METROPOLITAN MUSEUM OF ART, NEW YORK

Reproduction of the Capen house kitchen, Topsfield, Mass., 1683. (Illustration from the new Britannica)

FURNISHING THE HOME



© WALTER BOURKE

Long-case clock, 1705. (From the new Britannica)

FOR all who want ideas on home decoration, help in furnishing for beauty and for comfort, and the latest information on the practical side of housekeeping, there never was such a help as the *new* Britannica.

The practical, every-day usefulness of the *new* Fourteenth Edition is one of its outstanding features.

Here are articles on every decorative art and craft, on wall-coverings, on painting, on furniture of all periods, right up to the work of the most modern designers, on rugs, carpets, glass, plate, china, fabrics—about every object of art which can be used to make the modern home more picturesque and livable.

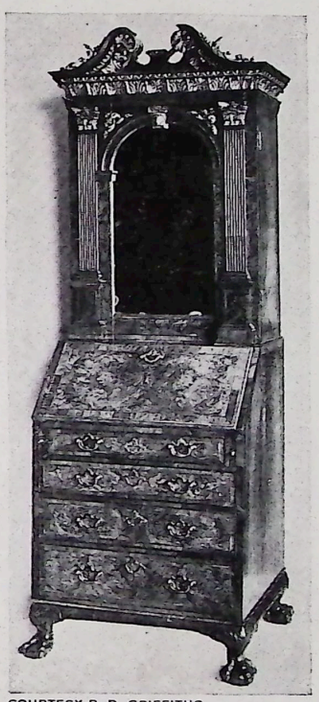
The illustrations alone, many of them in color, are an inspiration to the making of a beautiful home.

ADVICE BY EXPERTS

With the *new* Britannica in your living room you have at hand a whole army of experts to question and consult—experts in everything that goes to make a happy, healthy, comfortable home.

And these are experts who do not have to be paid. The cash value of the advice which this *new* Britannica can give you will cover its cost many times over. It is one of the first investments that should go into every home.

A superb bookcase table has been specially designed for the *new* Britannica. It is made of genuine mahogany. This handsome piece of furniture, with the Britannica in any one of the beautiful new bindings, will be a decorative furnishing for the living room or library of any home.



COURTESY P. D. GRIFFITHS

Bureau bookcase about 1730. (From the new Britannica)

MODERN HOME EQUIPMENT

HOUSEHOLD APPLIANCES

The *new* Britannica is full of suggestions for the woman who has the good of a family at heart. It contains priceless information about the home.

There is an article on refrigeration that will prove helpful to every woman. Another tells how vacuum cleaners operate and offers new hints about using them.

The article on Household Appliances describes innumerable devices that make housework easy and home life more cheerful.

Indeed, the *new* Britannica, with its wealth of practical information, is an invaluable aid to every intelligent housewife.

COURTESY THE NEW YORK EDISON CO.

Electrical device for squeezing fruit, beating eggs or whipping cream.

HOME MANAGEMENT

There are articles on management of a home with servants and on adapting the arrangement of a house to the size of the household.

The articles on Household Marketing and Household Management tell you how to save, how to buy, how to use money to the best advantage besides giving you ideas that help to simplify daily tasks.

Indeed, the *new* Britannica, with its wealth of practical information is a necessity to every woman. There simply is no book for the home like the *new* Britannica. Every progressive home needs it to remain progressive.

COURTESY, KEEPER, ASHMOLEAN MUSEUM, OXFORD

Aphrodite of Cnidus, 4th century B. C. copy, from a cast. Original in the Vatican. (Greek Sculpture).

COURTESY ARCHAEOLOGICAL SURVEY OF INDIA

"Rukminī". Sandstone. Height 5 ft. 4½ in. Nokhas, Etah District, about 10th century. (Indian Sculpture).

COURTESY, MUSEUM OF FINE ARTS, BOSTON

Maitreya (Miroku), here represented as a Bodhisattva in sculptured wood, overlaid with gold leaf. 1189. (Japanese Sculpture).

MUSEUM OF FINE ARTS, BOSTON

Kuanyin Bodhisattva, wooden statue, 13th century. (Chinese Sculpture). Illustrations from the new Britannica.

FOR THE FIRST TIME . . .
CLASSIC ART OF ALL THE WORLD
Brought Together in One Set of Books

IN the *new* Britannica, the classic art of all the world is brought together within the covers of a single work—not only Greek art, which the western world has always thought of as being alone "classic", but the classic art of all countries, East and West. To the student of art, this is an innovation of the utmost value.

Here are broad surveys of the history and recent developments in the fine arts —in architecture, music, painting and sculpture—of Greece and Rome, of China and Japan, of Egypt and India, of England and America—of all the arts of all the world.

"In no encyclopaedia," says The Atlantic Monthly, "has so much attention been given to art in all its phases."

And hundreds of pictures, like those above, as well as drawings and color plates, give added interest to what you read.

The *new* Britannica, with its many authoritative articles on the different phases of art and its many well-chosen pictures gives you a familiarity with the great arts of all times and all nations.

"Art's message asserts itself throughout the twenty-four volumes in language that every eye can understand and must instantly appreciate," says The New York Times.

ART OF ALL COUNTRIES BY GREATEST AUTHORITIES

Increase your critical faculties and your enjoyment of things beautiful by reading such articles as the following, by authorities in many lands.

CHINESE PAINTING, by Laurence Binyon, of the British Museum.

CHINESE SCULPTURE, by Oswald Siren, of the National Museum, Stockholm.

GREEK ART, by Percy Gardner, of the University of Oxford.

JAPANESE SCULPTURE, by Jiro Harada, of the Imperial Household Museums, Japan.

JAVANESE BATIK, by Warren E. Cox, Art Director, new 14th Edition.

ROMAN ART, by Henry Stuart Jones, of the University College of Wales.

PERSIAN ART, by Ernest Kühnel, of the Berlin Museum.

EGYPTIAN ART, by H. R. H. Hall, of the British Museum.

ETRUSCAN ART, by David Randall-MacIver, of the University of Pennsylvania.

JAPANESE PAINTING AND PRINTS, by Laurence Binyon.

THE *new* Britannica tells you about the world's great museums and prepares you in advance for appreciation of the treasures they contain. Its biographies of the masters and analyses of their work give greater significance to what you see. Following are a few representative articles:

MUSEUMS and ART GALLERIES, by William G. Constable of the National Art Gallery, Jiro Harada and others.

TAPESTRY, by Albert F. Kendrick, of the Victoria and Albert Museum.

RUGS and CARPETS, by C. E. Tattersall, of the Victoria and Albert Museum.

CHINESE BRONZE, by Charles F. Kelley, of the Art Institute of Chicago.

GLASS, by H. E. Van Gelder, of The Hague.

MOSAIC, by Talbot F. Hamlin, of Columbia University.

TEXTILES AND EMBROIDERIES, by A. K. Coomaraswamy, of the Museum of Fine Arts, Boston.

The *new* Britannica will give you a broad background of the arts of all ages. It will give you a cultural point of view in the field of modern art. The numerous articles on furnishings and decoration will provide you with practical information on how to utilize art in your home.

THREE GREAT ADVANTAGES *of* STUDYING ART *in the* ENCYCLOPÆDIA BRITANNICA

1. The Art of the East (China, Japan, India, Persia, etc.) is treated as fully as that of the West, a new feature in Encyclopaedias. This has never been done in any book until recently.

2. The Art of Today (theory, practice, technique) is treated by world-renowned *active* artists.

3. Shop notes, formulas, recipes, methods, diagrams, photographs showing actual manipulation of tools, brushes, etc.—these together help the student to learn things which few, if any, art schools are prepared to teach. The *new* Britannica fully covers every phase of art.

FOUR FAMOUS CONTRIBUTORS

Frank Brangwyn contributes an article full of first hand, practical information about the difficult art of mural painting. Mr. Brangwyn has achieved great distinction in this and other fields of art.

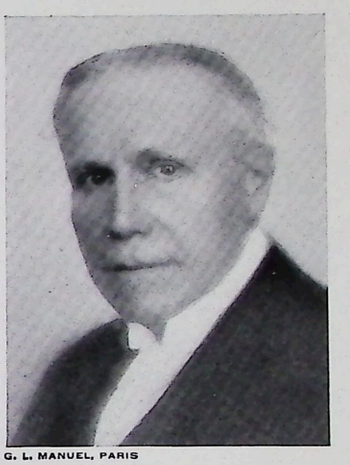
UNDERWOOD

FRANK BRANGWYN

KEYSTONE VIEW

PAUL MANSHIP

Mr. Manship, one of the greatest living sculptors, writes on Decorative Sculpture and tells how it differs from Garden Sculpture, Portrait Sculpture and Architectural Sculpture.



G. L. MANUEL, PARIS

PAUL JAMOT

M. Jamot, Curator of Painting of the Louvre in Paris, the greatest authority on painting in the world, describes in the *new* Britannica all of the great schools of painting and how they were created.

Nothing could be more interesting than the Britannica article on Etching by E. Lumsden. Mr. Lumsden is the greatest living technician in this field. He describes every step of the process in detail.

EB

E. LUMSDEN

TECHNIQUE OF ALL ARTS EXPLAINED

EVERYONE at some time or other wants to try his hand at drawing, modeling, etching, book binding, china painting, wood carving or some one of the hundreds of fascinating arts which give joy to the creator.

Many young people never develop this inclination because it is so difficult to know *How to Begin*.

The *new* Britannica is the one book which will tell you all you need to know simply and correctly, so that you do not waste time in useless experimentation.

MAKING AN ETCHING

(*From the article by E. Lumsden in the new Britannica.*)

"The essentials for producing an etching are: (1) A metal plate; (2) a mordant resist or 'ground'; (3) a point which will cut through the ground; (4) a mordant; (5) ink, paper and press. For fine work artists generally prefer copper, for coarser, simpler designs zinc is equally capable of yielding the best results. But from the closer-textured copper a greater range in light and shade is possible.

"Before applying the 'ground' the plate's surface must be cleaned thoroughly, to allow as perfect contact as possible. This may be done by means of any solvent—turpentine, benzine, petrol or ammonia—with whitening and a soft rag. Tarnish may be removed with vinegar (or acetic acid) and common salt."

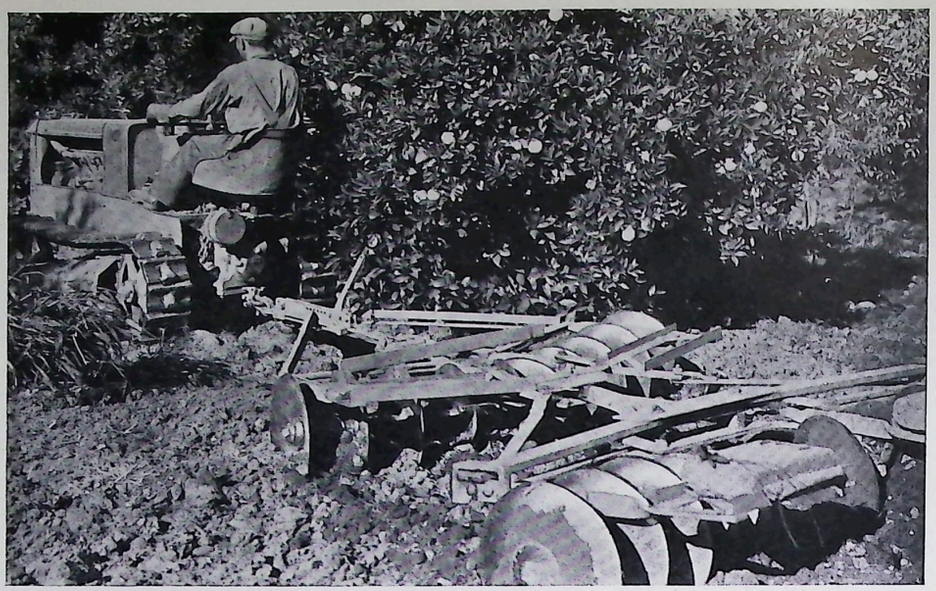
In his article in the *new* Britannica Mr. Lumsden then proceeds to explain the technique of such phases as The Ground, Points, Biting, Proving, Printing and Paper.

Other articles on the practice of the arts include:

LANDSCAPE PAINTING	Daniel Garber
PEN DRAWING	Franklin Booth
OIL PAINTING	Jean G. Goulinat
ILLUSTRATION	Frederick R. Gruger
WOOD CARVING	Herbert H. Grimwood
PENCIL DRAWING	John Leckie
TEMPERA	Yarnall Abbott
CARTOON	Arthur Young
PERSPECTIVE	W. H. Laurence

The foremost craftsmen in glass, iron, pottery, gold, silver, wood and jewels also tell you how to work these materials and give invaluable practical advice. All these articles are elaborately illustrated.

NEW ALLIES *for the* FARMER



COURTESY, THE CATERPILLAR TRACTOR CO.

Soil cultivation in citrus grove with tractor. Top soil is loosened with disc harrow. (Illustration from the new Britannica.)

COURTESY U. S. BUREAU OF ENTOMOLOGY

Removing the honeycomb from the hives at Somerset Apiary. (Illustration from the new Fourteenth Edition of the Britannica.)

THE *new* Britannica is a mine of profitable ideas for the farmer. Every activity, from fertilizing to marketing, and every problem, from plant disease to budgets and credits, is discussed authoritatively in clear, simple language.

Of special interest in meeting competition in the world's markets are the new developments in farm machinery and implements. The *new* Britannica devotes many pages to them, and many pictures. The possibilities of applying electricity and chemistry on the farm are also fully explained.

For the farmer who wants to run his farm on a scientific basis, there are many helpful articles on Farm Management, Buildings, Co-operation, Prices, etc.

COURTESY CANADIAN PACIFIC RAILWAY

Oat crop on a farm near Aldersyde, Alberta, in the midst of the great grain producing district. (Illustration from the new Fourteenth Edition of the Britannica.)

RESULTS OF RESEARCH

AGRICULTURAL ARTICLES

Soil, Fertilizers, Reaping, Tropical Agriculture.

Agricultural Credit, Agricultural Education, Farm Organization, Farm Valuation, Flower Farming, Dairy Farming.

Agricultural Shows, Agricultural Laborer, Cultivation, Sowing.

Drainage, Rotation of Crops, Weed Destruction, Threshing, Agricultural Economics, Agricultural Insurance, Farm Management, Farm Rents, Agricultural Prices, etc., etc.

COURTESY J. I. CASE THRESHING MACHINE CO.

Combination disc harrow, spike tooth harrow and grain drill preparing the soil and sowing grain in one operation.

Every phase of agriculture is fully covered in the *new* Fourteenth Edition of the Britannica. It is a complete handbook for both farmer and gardener.

THE WORK OF EXPERTS

The *new* Britannica has assembled the greatest authorities in the world to help the farmer solve his problems.

It has had the fullest co-operation of the Boyce Thompson Institute and leading agricultural colleges and stations everywhere.

Among many distinguished contributors are: T. N. Carver of Harvard, G. F. Warren of Cornell, William Crocker of the Boyce Thompson Institute and Nelson Antrim Crawford, Editor-in-chief of the Household Magazine.

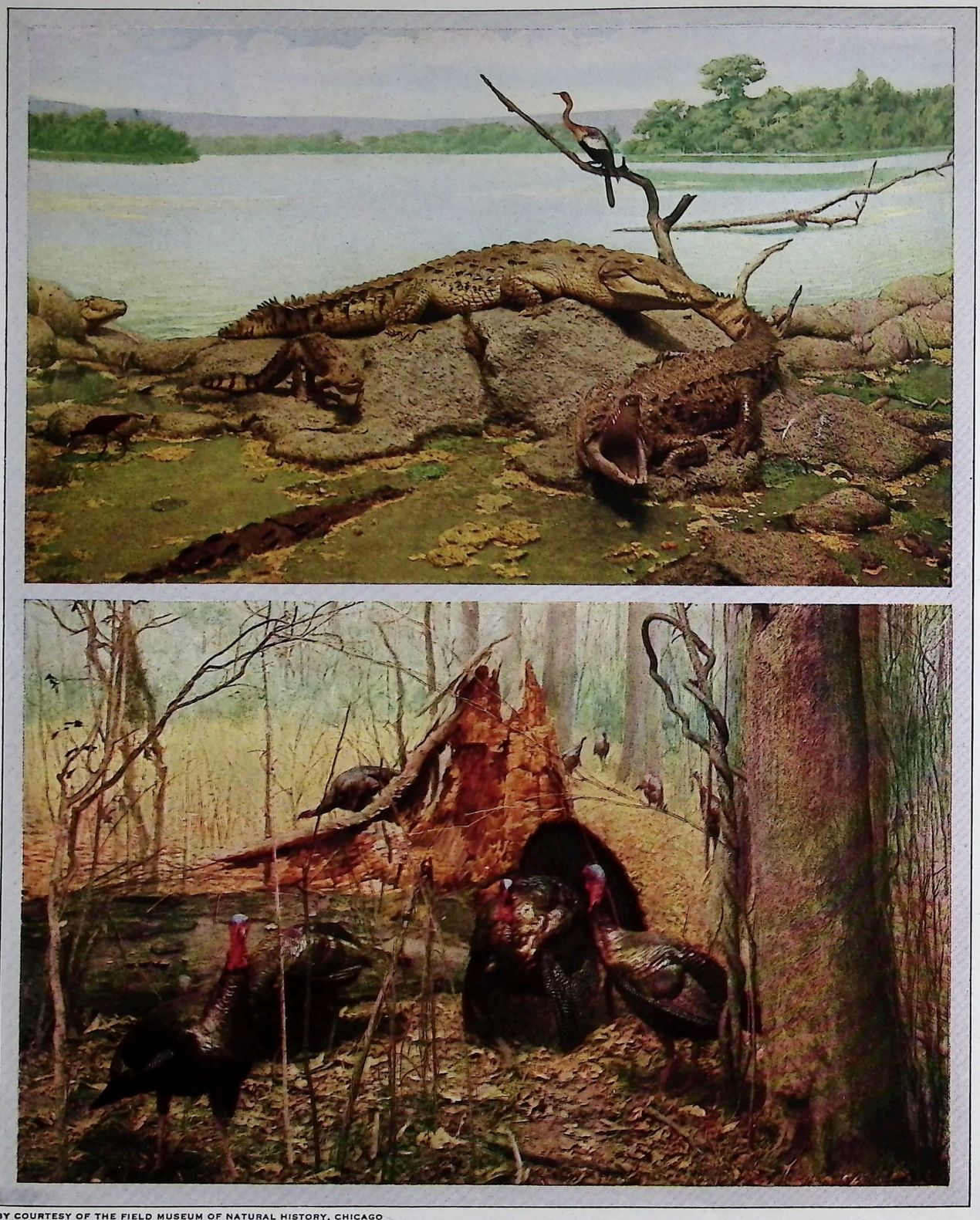
Prepared under the direction of Dr. George F. Kunz, Hon. Curator of Precious Stones, American Museum of Natural History; Gem Expert with Tiffany & Co. By courtesy of (1, 4, 8, 9) Dr. George F. Kunz, (2, 3) The American Museum of Natural History, (5) Duval Compagnie, (6) Mrs. W. E. Cox, (7) Yamanaka & Co.

Sea Treasures

How to know the precious stones

Precious and semi-precious stones, pearls and other marine gems, are fully described in word and picture in the *new* Britannica. Many, such as those shown above, are faithfully portrayed in their natural color.

(Figs. 1, 2) Show pearls found in common fresh water mussels; (3) oriental pearl, black; (4) a pearl from a common clam; (5) ambergris; (6, 8) coral; (7, 9) amber.



BY COURTESY OF THE FIELD MUSEUM OF NATURAL HISTORY, CHICAGO

HABITAT GROUPS

CROCODILES AND WILD TURKEYS

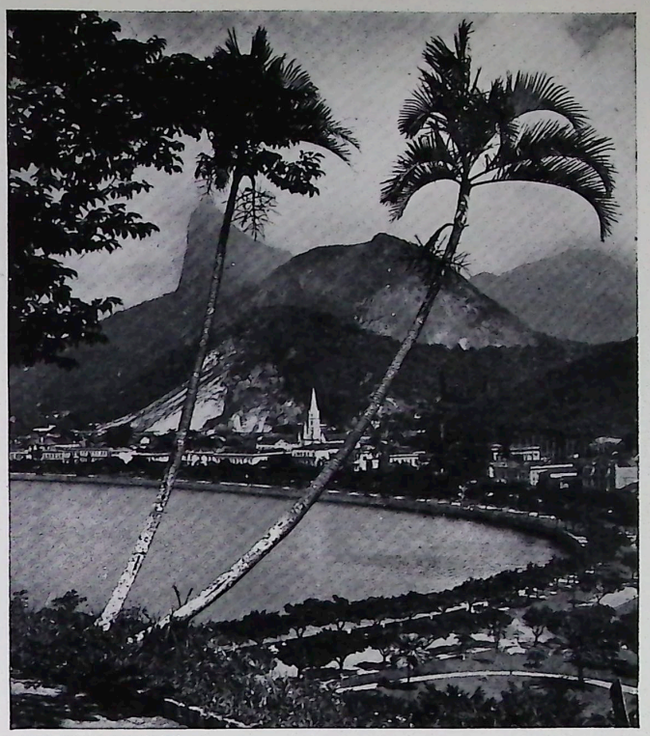
The animal life of this age and ages past is described in many articles in the *new* Britannica. Various breeds of common domestic animals are shown in halftone, and among the many color plates the museum habitat groups, like those shown above, have outstanding merit.

Group 1 shows crocodiles, averaging about ten feet in length, found in Lake Ticamaya, Honduras. Group 2, wild turkeys, still found in parts of the eastern United States. (Painted by Charles Abel Corwin.)

HIGHWAYS *and* BYWAYS *of the* WORLD

IF you want to enjoy the far-off places of the world without leaving your own fireside, the *new* Britannica will transport you wherever you wish to go. As one subscriber has said, "It is a portal through which I have gone through the ages and about the world."

In its pictures alone, you can visit every nation and every land—see the beauty spots and mingle with the people. And there are thousands of fascinating articles to tell you the history of the places you see and explain the manners and customs of all races. It lays the whole world before you.



PHOTO, EWING GALLOWAY

View of the harbor of Botafogo Bay and the Avenida Beira-Mar, the beautiful boulevard of Rio de Janeiro which stretches for 20 miles around the harbor. The high pointed peak called Corcovado (Hunchback) may be seen in the background.

WHERE TO GO AND WHAT TO SEE

EVEN if you are a seasoned traveler, you will find the *new* Britannica a great help in getting the most out of your travels. It prepares you in advance for the places you are going to visit; tells you what you need to know about the topography, climate, mode of living, transportation, etc. It tells you where to go and what to see.

It provides up-to-date maps of countries and cities and points out and describes churches, libraries, buildings of interest, and various natural phenomena.

And when you have returned from your trip, reference to the *new* Britannica will give new interest to what you have seen.

"'I can hardly wait to get home to my Encyclopaedia Britannica,' I heard an old gentleman say when we were being whisked through the ruins of Melrose Abbey. 'Then I will know who these Cistercians were and what they were doing in England and when they were doing it.'

"This seasoned old traveler knew his reference books. There is nothing like the Britannica on winter evenings after a holiday trip to set one straight on what one saw in the summer. It is better than all the picture postals one can collect at the exits of museums or at railroad-platform bookstalls."—MARGERY C. QUIGLEY, Librarian, Montclair, N. J., in *The Journal of the National Education Assn.*

PHOTO, DONALD MCLEISH

The town of San Marino, founded probably in the 4th Century, situated on the slopes of a mountain. (From the new Britannica.)

READ WHAT THIS WORLD-TRAVELER SAYS

HERE is a letter from a man who traveled around the world and returned home to find some of the greatest thrills of his adventure in the Britannica.

Los Angeles, Calif.

"I have traveled in various parts of the world and one of my trips included Egypt; up the Nile to Khartum; thence via Atbara to Port Sudan; by steamer to Mombasa, Zanzibar and Darbar; then by railroad to Cape Town, passing Victoria Falls in the Zambesi, Kimberley and many other places of interest.

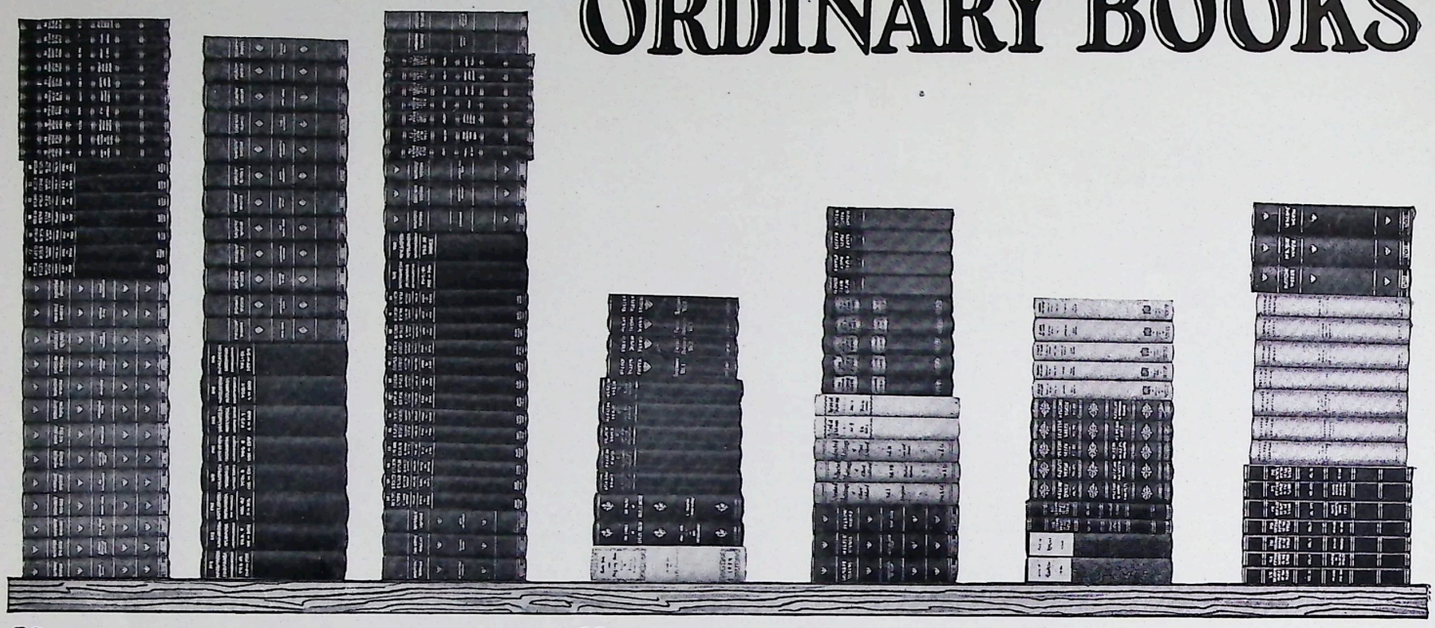
"Yet these places meant far less to me then than they did after I had returned and read about them in the Britannica. I had heard in South Africa of the deadly calibar bean and the terrible tsetse fly. But now that I have had an opportunity to read about them, I enjoy my trip in retrospect even more than when I was actually *en route*. I had passed near the spot where Stanley found Dr. Livingstone, but you can imagine how much more interesting was my recollection when I had read the graphic account of this dramatic incident as it is told in the Britannica."—GEORGE H. ROSS.

The *new* Britannica is a magic carpet upon which both young and old can roam the world over. Every country is fully treated by authorities.

PHOTO, BURTON HOLMES, FROM EWING GALLOWAY

A view of Paris. Looking east along the Seine, from the roof of Notre Dame. (Illustrations from the new Britannica.)

The NEW BRITANNICA is the EQUIVALENT of 500 ORDINARY BOOKS



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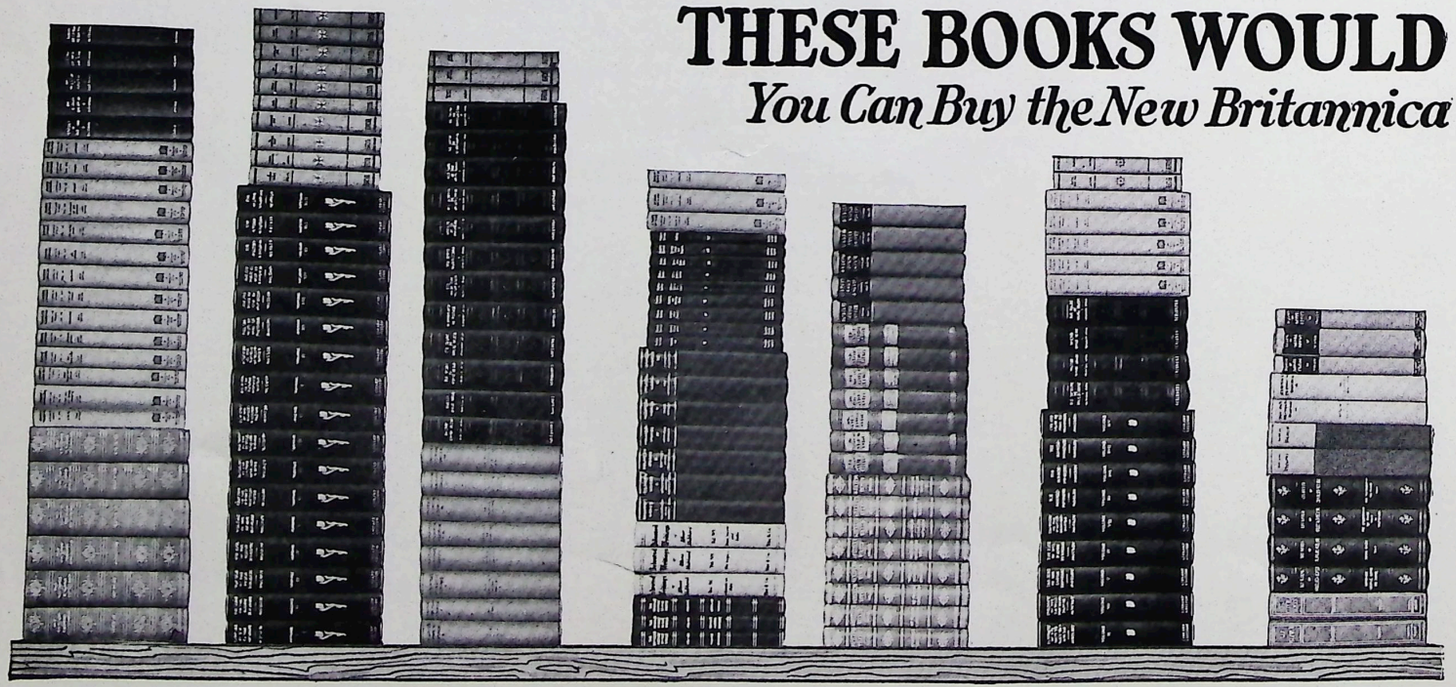

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CLASSIFIED ACCORDING TO SUBJECTS

Here is the Number of Average Size Volumes You Would Have

IF ALL the articles contributed to the *new* Britannica were assembled according to subjects, and printed and bound as ordinary separate books, over 500 volumes would be filled, as you will see from these two pages.

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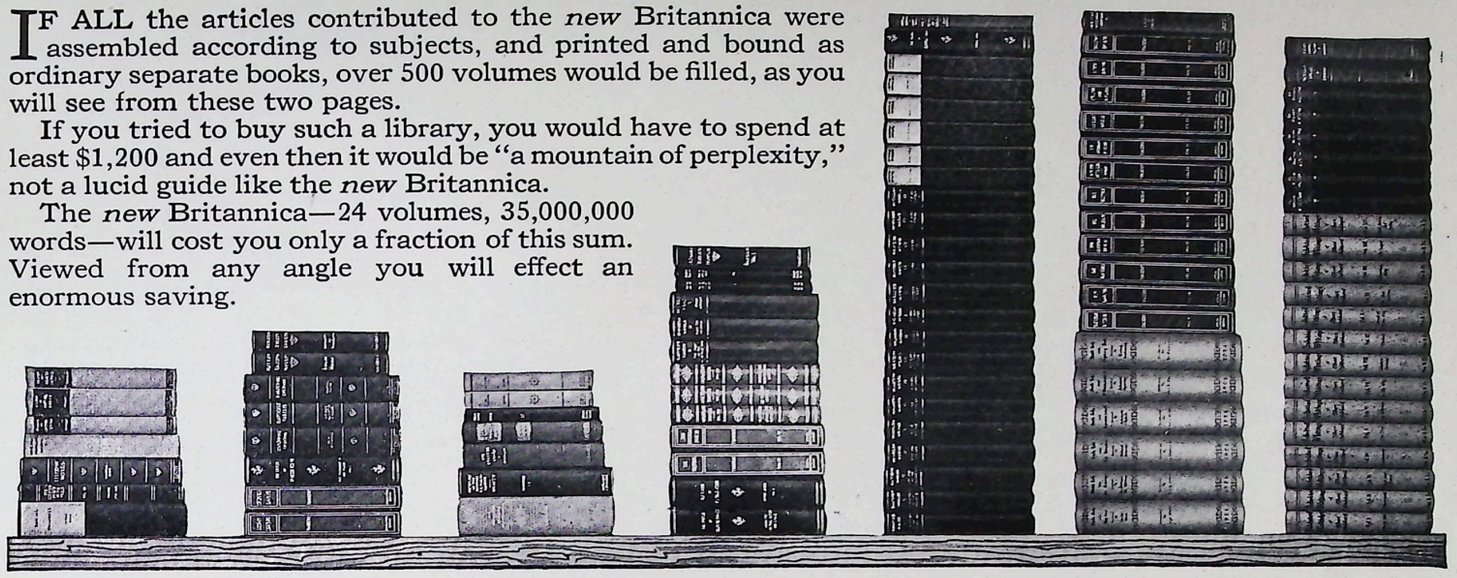

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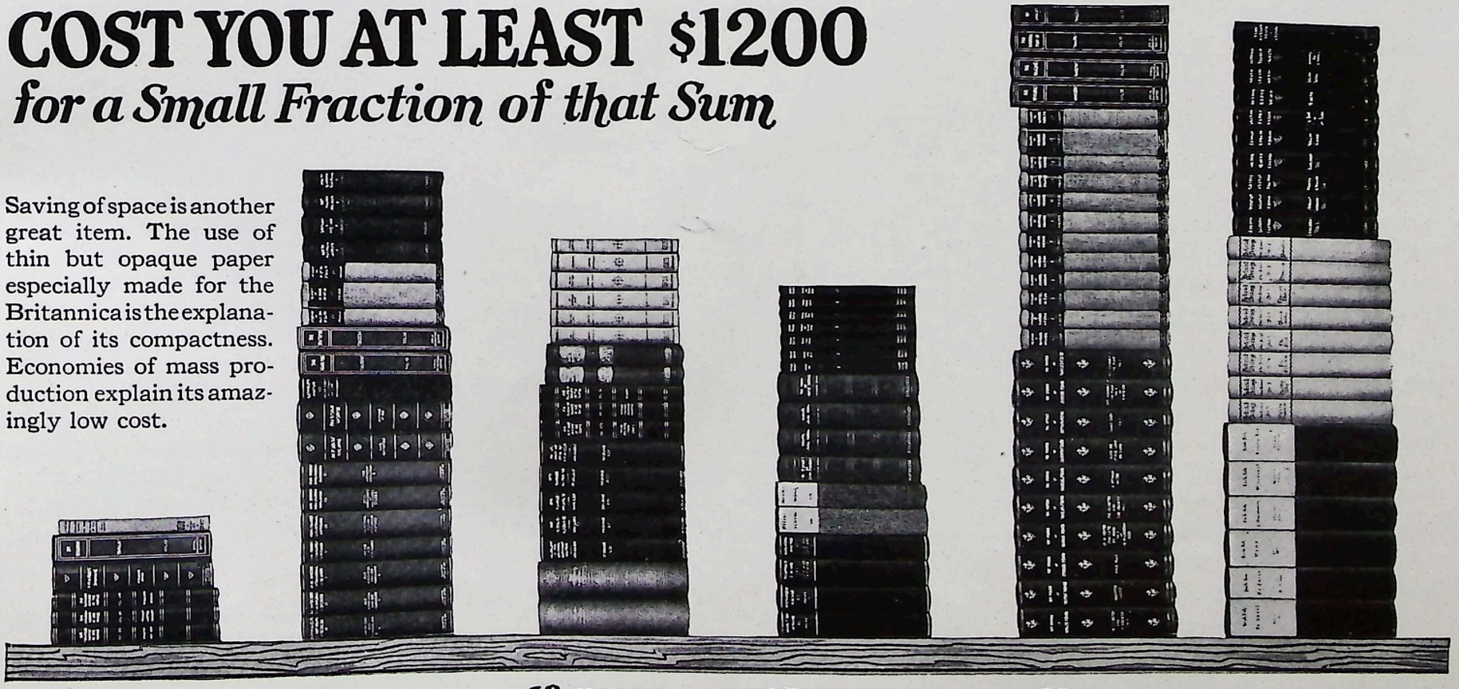
Saving of space is another great item. The use of thin but opaque paper especially made for the Britannica is the explanation of its compactness. Economies of mass production explain its amazingly low cost.



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DR. GEORGE F. BOWERMAN, *Librarian, The Public Library, Washington, D.C.*:—"The illustrations are a joy; they are at once artistic and really illustrative—they help to picturize the knowledge and are a real service to understanding."

BY COURTESY OF (TOP AND CENTRE PANELS) THE METROPOLITAN MUSEUM OF ART, NEW YORK, (BOTTOM PANEL) THE BOSTON MUSEUM OF FINE ARTS

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The world's museums have yielded their most precious art treasures for the illustration of the *new* Britannica.

This plate shows Egyptian handicraft, dating back to 1580 B.C. *Top:* Carnelian plaques, from bracelets or armlets. *Centre:* Turquoise blue glass vase; gold statuette of Amon; faience cup in form of lotus flower. *Bottom:* Wooden coffin painted with figures symbolic of the soul's journey to the world of the dead.

ART *of* ANCIENT EGYPT

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"NOTHING is too profound to baffle the *new* Britannica and nothing too familiar to escape its informing touch. And on every subject it speaks with the same finality and authority.

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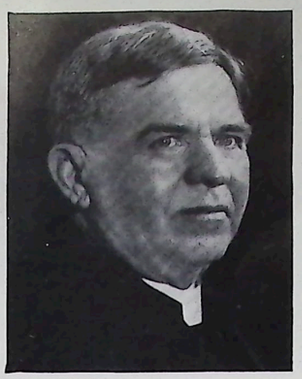
A NEW survey of universal knowledge—the most comprehensive, current and useful reference book ever published—of great beauty and convenience. For your children, for your culture, for practical guidance, this book will add to your wisdom and your pleasure in belonging to the human race—*Leon Whipple, in the Survey Graphic.*

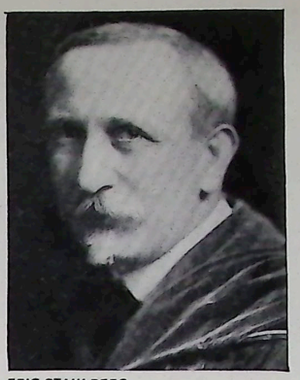


UNDERWOOD

DR. S. PARKES CADMAN

BACHRACH

DOROTHY CANFIELD FISHER



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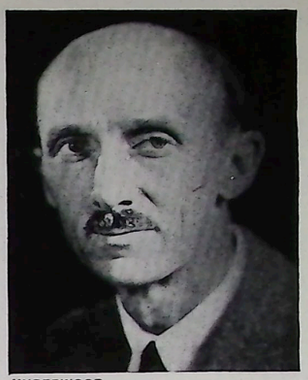

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